

COMMONWEALTH BUREAU OF CENSUS AND STATISTICS,  
MELBOURNE.

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OFFICIAL  
YEAR BOOK  
OF THE  
COMMONWEALTH OF AUSTRALIA,  
CONTAINING AUTHORITATIVE STATISTICS FOR THE PERIOD  
1901-1917

AND CORRECTED STATISTICS FOR THE PERIOD 1788 TO 1900.

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No. 11.—1918.

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Prepared under Instructions from  
The Minister of State for Home and Territories,

BY

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COMMONWEALTH STATISTICIAN.



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## PREFACE.

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By the Constitution of the Commonwealth of Australia, the Commonwealth is empowered "to make laws for the peace, order, and good government of the Commonwealth, with respect to," *inter alia*, "Census and Statistics." In the exercise of the power so conferred, a "Census and Statistics Act" was passed in 1905, and in the year following the "Commonwealth Bureau of Census and Statistics" was created. The first Official Year Book was published early in 1908. The publication here presented is the eleventh authoritative Year Book issued under the Federal Constitution.

This Year Book furnishes corrected statistics for the whole period of Australian settlement, viz., from 1788 to 1917. Wherever space has permitted, detailed statistics have been furnished for each year since Federation, viz., from 1901 to 1917. In the few instances where this has proved impracticable, reference will be necessary to Year Books Nos. 1 to 10. The inclusion, as stated, of the total available information in the more important branches of statistics enables this publication to be used wherever it is desired to make a comparative survey of the evolution of this portion of the British Empire. Not only are the results given for the Commonwealth as a whole, but also for each State therein.

The general arrangement of the publication, which has received wide approval, corresponds with that of previous issues, and is shewn in the synopsis on pp. xiii. to xxix. immediately following.

In addition, however, to what may be called purely statistical matter, each issue contains special articles dealing at length with some particular subject or subjects of more or less permanent interest. These cannot of course be repeated year after year, but in some instances a brief condensation is given in subsequent issues. Though many articles in Year Books Nos. 1 to 10 have been reduced to synopses or deleted, sufficient indication is given to enable the subject to be traced in previous issues.

The present issue contains a specially-contributed article, dealing with "The Climatic Factors Influencing Settlement in Australia," a matter of outstanding importance, in view of post-war world developments.

Amongst new matter incorporated in the various sections, mention may be made of the Australian Life Tables appearing at the end of the section dealing with Vital Statistics. The latest available information *re* the Commonwealth Wheat Scheme will be found in the Agriculture Section and the Appendix thereto. The Shipping Section gives details of the Commonwealth activity in connection with the construction and control of shipping, the Railways Section contains a description of the Trans-Australian Railway, while a short reference to the subject of Repatriation appears at the close of the section dealing with Defence, and the Miscellaneous section contains some interesting details regarding anthropometric measurement of cadets. In the Miscellaneous section also will be found a reference to the subject of standard times in Australia.

The subject matter throughout is dealt with, as far as possible, from the following points of view, viz.:—

(i.) The development of the individual States. (ii.) The progress of Australia as a whole from the earliest times. (iii.) The statistical comparison of Australia with other leading countries of the world.

The full text of the Commonwealth Constitution Act and Amendments appears on pages 15 to 34.

A feature of this publication is the use made of maps and diagrams. As a rule, facts can be properly appreciated only by the use of graphs, and the progress of events, the characteristics of growth and decline, can in general be grasped much more readily graphically than numerically. The diagram or "graph" is a direct picture in which the relative magnitudes are preserved and by which instantaneous comparisons of a wide range of facts are made possible at a glance. The statistical data, however, are also given *in extenso* numerically. Special mention may be made of the map of Australia—inset on the back cover—which has been reduced from the large scale map published under the authority of the Minister for Home and Territories from data supplied by the several States. Since the issue in Year Book No. 9, important alterations and additions have been made.\*

The development of Australia has been in many instances very remarkable, and this could be shewn only by tables and graphs dating back to its beginning in 1788. In most cases accurate data are not available for years much before 1860. In such cases, therefore, it would appear sufficient at present to give continuous results from that year onwards.

The great mass of material embodied in each Year Book is always carefully examined, but it would be idle to hope that all error has been avoided. The Commonwealth Statistician desires to express appreciation of the opportunity afforded him of perfecting the matter of the Year Book, by those who have been kind enough to point out defects or make suggestions.

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\* The work of revision was undertaken in the office of the Commonwealth Chief Surveyor  
J. T. H. Goodwin, Esq.

The corresponding years indicated in various sections of this book do not always necessarily refer to the same period, the year ending in some cases on 31st December, 30th June, or 31st March, etc. The precise period for which returns are given is indicated where necessary.

Recent information or returns which have come to hand since the various Sections were sent to press, may be found in the Appendix, p. 1210.

The last three Year Books (Nos. 9, 10 and 11) are somewhat later in appearance than preceding issues. This is due to a combination of circumstances: (a) the change in the trade year from the calendar to the financial year; and (b) lateness in receipt of various returns occasioned by special circumstances arising out of the war or otherwise unavoidable.

It is hoped eventually to secure "Production" returns from all the States for the financial year, and the enhanced value of the figures for comparative purposes would more than counterbalance the slightly later issue of the Year Book.

In conclusion, the Commonwealth Statistician desires to express his cordial thanks to the State Statisticians, to the responsible officers of the various Commonwealth and State Departments, and to others, who have kindly, and often at considerable trouble, supplied all desired information.

G. H. KNIBBS,

*Commonwealth Statistician.*

COMMONWEALTH BUREAU OF CENSUS AND STATISTICS,  
*Melbourne, 20th November, 1918.*

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## CORRIGENDA.

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Page 98, line 9, for "between the ten and twenty-inch isohyet," read "between the ten and twenty-inch winter isohyet."

In the second table on page 852, substitute £6 1s. 11d. for £5 17s. 0d. in the case of the year 1914, Victoria.

# INDEX TO SPECIAL ARTICLES, ETC., APPEARING IN PREVIOUS ISSUES.

These articles have appeared in former issues of the Commonwealth Year Book, but, owing to exigencies of space, they are not included in this publication.

NOTE.—The Roman figures indicate the number of the Year Book to which reference is made.

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# STATISTICAL SUMMARY.

## STATISTICAL SUMMARY FOR THE COMMONWEALTH, 1871-1916.

(Figures for 1917, where available, will be found in the Appendix, and in some instances, have been incorporated in the succeeding sections.)

Heading.	Years.						
	1871.	1881.	1891.	1901.	1911.	1914.	1916.
Population	Males	928,918	1,247,059	1,736,617	2,004,836	2,377,920	2,551,431
	Females	771,970	1,059,677	1,504,368	1,820,077	2,190,787	2,389,521
	Total	1,700,888	2,306,736	3,240,985	3,824,913	4,568,707	4,940,952
Births ...	No.	63,625	80,004	110,187	102,945	122,193	137,983
	Rate	38.00	35.26	34.47	27.16	27.21	28.05
Deaths ...	No.	22,175	33,327	47,430	46,330	47,869	51,720
	Rate	13.24	14.69	14.84	12.22	10.66	11.04
Marriages	No.	11,623	17,244	23,862	27,753	39,482	43,311
	Rate	6.94	7.60	7.47	7.32	8.79	8.21
Agriculture—							
Wheat ...	Area, acs.	1,279,778	3,002,064	3,335,528	5,115,965	7,427,834	9,651,081
	Yld., bshl	11,917,741	21,443,862	25,675,265	38,561,619	71,636,347	24,892,402
	Av. "	9.31	7.14	7.70	7.54	9.64	2.58
Oats ...	Area, acs.	225,492	194,816	246,129	461,430	616,857	774,734
	Yld., bshl	4,251,630	4,795,897	5,726,256	9,789,854	9,561,771	4,341,104
	Av. "	18.85	24.62	23.27	21.22	15.50	5.60
Barley ...	Area, acs.	48,164	75,864	68,068	74,511	116,466	153,656
	Yld., bshl	726,158	1,353,380	1,178,560	1,519,819	2,056,836	1,322,910
	Av. "	15.08	17.84	17.31	20.40	17.68	8.65
Maize ...	Area, acs.	142,078	165,777	284,428	294,849	340,065	339,781
	Yld., bshl	4,576,635	5,726,256	9,261,922	7,034,786	9,339,855	8,455,561
	Av. "	32.21	34.54	32.56	23.86	26.29	24.89
Hay ...	Area, acs.	303,274	768,388	942,166	1,688,402	2,518,288	2,623,613
	Yld., tons	375,871	767,194	1,067,255	2,024,608	2,867,973	1,733,944
	Av. "	1.24	1.00	1.13	1.20	1.14	0.66
Potatoes <sup>1</sup>	Area, acs.	67,911	76,365	112,884	109,685	130,463	151,845
	Yld., tons	212,866	243,216	380,477	322,524	301,489	372,889
	Av. "	3.13	3.19	3.37	2.94	2.31	2.46
Sugar Cane <sup>4</sup>	Area, acs.	11,576	19,708	45,444	86,950	101,010	172,616
	Yld., tons	176,632	349,627	737,573	1,367,802	1,682,250	2,104,239
	Av. "	15.25	17.74	16.23	15.73	6.65	18.45
Vineyards	Area, acs.	16,253	14,570	48,882	63,677	6,602	60,985
	Wine, gal	2,104,000	1,488,000	3,535,000	5,816,087	4,975,147	2,875,326
Total value all agricultural production ...	£	8,941,000	15,519,000	16,480,000	23,835,000	38,774,000	36,052,000
Pastoral, dairying, etc.							
Live Stock	Sheep, No.	40,072,955	65,092,719	106,421,068	72,040,211	93,003,521	78,600,334
	Cattle "	4,277,228	8,010,991	11,112,112	8,491,428	11,828,954	11,051,573
	Horses "	701,530	1,068,029	1,584,737	1,620,422	2,279,027	2,521,272
	Pigs "	586,017	703,188	845,888	931,309	1,110,721	862,447
Wool prod., lb. greasy		179,000,000	332,759,000	631,587,000	543,131,661	726,408,625 <sup>2</sup>	642,734,725 <sup>2</sup>
Butter product'n, lbs.	"	"	"	47,433,564	101,671,066	211,573,745	193,970,412
Cheese "	"	"	"	19,146,929	11,575,692	15,886,712	21,240,411
Bacon and ham "	"	"	"	"	34,020,629	53,264,652	52,574,902
Total estimated value of pastoral and dairying production ...	£	20,736,000	29,538,000	39,256,000	36,890,000	69,832,000	81,827,000
Mineral production—							
Gold...	£	7,239,106	5,194,390	5,281,861	14,005,732	10,551,624	8,729,947
Silver and lead ...	£	29,488	31,139	3,717,825	2,367,687	3,021,284	3,818,076
Copper ...	£	824,111	673,786	362,745	2,238,590	2,564,278	2,349,881
Tin ...	£	18,597	1,145,603	560,750	437,576	1,309,973	758,431
Zinc...	£	"	"	2,622	1,415,169	1,021,090	962,479
Coal...	£	325,747	636,746	1,908,028	2,602,770	3,929,672	4,619,689
Total value all mineral production ...	£	8,484,728	7,813,523	12,093,837	22,043,104	23,480,211	22,264,589
Forestry production—							
Quantity of local timber sawn or hewn 1000 sup. ft.	"	"	"	452,131	592,944	675,555	473,332
Manufactories— <sup>3</sup>							
No. of factories	...	...	...	...	14,455	15,428	15,010
Hands employed	...	...	...	...	311,710	331,728	316,752
Wages paid ...	£	...	...	...	27,528,703	34,103,703	33,828,840
Total value of output <sup>5</sup>	...	...	...	...	133,022,090	166,405,923	172,574,845
Value added in process of manufac. ...	£	...	...	...	54,017,714	66,661,444	67,394,400

<sup>1</sup> Partly estimated 1871 and 1881. <sup>2</sup> Owing to variation in classification and lack of information effective comparison is impossible. <sup>3</sup> Information not available. <sup>4</sup> Area of productive cane. <sup>5</sup> Season ended 30th June, year following.

# STATISTICAL SUMMARY.

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## STATISTICAL SUMMARY FOR THE COMMONWEALTH—(continued).

Heading.	Years.						
	1871.	1881.	1891.	1901.	1911.	1914.	1916.
Shipping—							
Oversea vessels { No. 2,748 3,284 3,778 4,028 4,174 3,926 3,986							
ent. & cleared ton. 1,312,642 2,549,364 4,726,307 6,541,991 9,984,801 10,380,386 7,694,442							
Commerce—							
Imports oversea £ 17,017,000 29,067,000 37,711,000 42,434,000 66,967,488 73,945,664 76,228,679							
per head £ 10/3/3 12/16/2 11/16/0 11/3/11 14/18/3 15/0/8 15/12/9							
Exports oversea £ 21,795,000 27,528,000 36,043,000 49,696,000 79,482,258 67,360,588 97,955,482							
per head £ 12/19/6 12/2/8 11/5/6 13/2/2 17/14/1 13/13/10 20/1/10							
Total oversea trade £ 38,742,000 56,595,000 73,754,000 92,130,000 146,449,746 141,306,252 174,184,161							
per head £ 23/2/9 24/18/10 23/1/6 24/6/1 32/12/4 28/14/6 35/14/7							
Customs and excise duties ... £ ... 4,809,326 7,440,869 8,656,530 13,515,005 15,072,689 16,118,920							
per head, £ ... 2/2/5 2/6/7 2/5/8 3/0/3 3/1/4 3/6/0							
Principal Oversea Exports—							
Wool { lbs. (greasy) 176,635,820 328,369,169 619,259,753 518,018,134 720,364,903 470,933,213 452,596,450							
busbels 9,459,629 13,173,026 19,940,029 15,237,454 26,071,193 18,375,303 28,253,338							
Wheat { 799,924 5,364,653 9,794,791 20,260,058 55,147,840 52,878,122 55,278,872							
tons 193,732 1,189,762 1,938,864 2,774,643 9,641,608 9,986,514 13,374,511							
Flour { 12,988 49,549 33,363 96,814 175,891 174,217 290,633							
lbs. 170,415 519,635 328,423 589,604 1,391,529 1,495,557 3,463,363							
Butter { 1,818,688 1,398,758 4,239,494 34,607,397 101,732,136 56,162,547 75,361,869							
£ 45,813 39,383 206,868 1,451,168 4,637,362 2,655,379 5,338,848							
Skins and hides ... £ 100,123 316,878 873,695 1,250,938 3,237,326 4,146,003 2,273,648							
Tallow ... £ 914,378 644,149 571,069 677,745 1,935,836 1,897,466 1,252,266							
Meats ... £ 566,780 362,965 460,894 2,611,244 4,303,159 9,088,617 8,861,157							
Timber (undressed) £ 42,586 118,117 38,448 731,301 1,023,960 ... 289,738							
Gold ... £ 7,184,833 6,445,365 5,703,532 14,315,741 12,045,766 2,185,010 10,580,976							
Silver and lead ... £ 37,891 57,954 1,932,278 2,250,253 3,212,584 ... 5,000,268							
Copper ... £ 598,538 676,515 417,687 1,619,145 2,345,951 ... 4,317,984							
Coal ... £ 134,355 361,081 645,972 966,957 900,622 1,061,127 415,560							
Govt. Railways—							
Lgh. of line open, mls 970 3,832 9,541 12,577 16,079 18,327 20,738							
Capital cost ... £ 19,269,786 42,741,350 99,764,090 123,587,000 152,194,603 179,968,432 205,167,000							
Gross revenue ... £ 1,102,650 3,910,122 8,654,085 11,038,000 17,647,543 21,982,480 22,229,174							
Working expenses £ 608,332 2,141,735 5,630,182 7,149,000 11,054,383 15,060,789 16,249,387							
Per cent. of work'g exp- 55.17 54.77 65.06 64.76 61.94 68.51 73.10							
ences on earnings %							
Postal—							
Letters and postcards dealt with ... No. 24,382,000 67,640,000 157,297,000 220,853,000 453,885,410 524,482,965 584,148,939							
per head .. 14.54 29.61 49.07 58.26 101.08 106.62 119.82							
Newspapers dealt with ... No. 3,336,000 38,063,000 85,280,000 102,727,000 139,603,510 136,669,530 146,857,674							
per head .. 7.95 16.66 26.61 27.10 31.09 27.78 30.12							
Cheque-paying Banks—							
Note circulation £ 2,456,487 3,978,711 4,417,269 3,406,175 2,876,428 2,287,308 2,517,763							
Coin & bullion held £ 6,168,869 9,108,243 16,712,923 19,737,572 30,024,225 35,137,225 25,919,332							
Advances ... £ 26,039,573 57,732,824 129,741,583 89,167,499 116,769,133 120,893,691 134,239,247							
Deposits ... £ 21,856,959 53,849,455 98,345,338 90,965,530 147,103,081 162,586,484 196,665,369							
Savings Banks—							
Number of depositors 100,713 250,070 614,741 964,553 1,600,112 2,199,108 2,418,297							
Total deposits ... £ 3,193,285 7,854,460 15,536,592 30,882,645 59,393,682 86,670,737 96,284,078							
Aver. per depositor £ 31/14/2 31/8/2 25/5/6 32/0/4 37/2/4 39/8/3 39/16/5							
head of population ... £ 1/18/9 3/10/5 4/18/7 8/3/0 13/8/5 17/11/3 19/12/10							
State Schools—							
Number of schools 2,502 4,494 6,231 7,012 8,060 8,732 8,875							
Teachers ... No. 4,641 9,028 12,564 14,500 16,971 20,728 23,389							
Enrolment ... 236,710 432,320 561,153 638,478 638,850 713,232 751,126							
Aver. attendance .. 137,767 255,143 350,773 450,246 463,799 544,230 569,306							

<sup>1</sup> Australian produce, except gold, which includes re-exports. <sup>2</sup> Decrease due to prohibition of re-issue.

# CHRONOLOGICAL TABLE.

## CHRONOLOGICAL TABLE OF CHIEF EVENTS SINCE THE ESTABLISHMENT OF SETTLEMENT IN AUSTRALIA.

NOTE.—The Government was centralised in Sydney, New South Wales, up to 1825, when Tasmania (Van Diemen's Land) was made a separate colony. In the Table, the names now borne by the States serve to indicate the localities.

Year.	
1788	N.S.W.—Arrival of "First Fleet" at Botany Bay. Land in vicinity being found unsuitable for settlement, the expedition moved to Sydney Cove (now Port Jackson). Formal possession of Port Jackson taken by Captain Phillip on 26th January. Formal proclamation of colony on 7th February. Population, 1024. Branch settlement established at Norfolk Island. French navigator Lapérouse visited Botany Bay. First cultivation of wheat and barley. First grape vines planted.
1789	N.S.W.—First wheat harvest at Parramatta, near Sydney. Discovery of Hawkesbury River. Outbreak of small-pox amongst aborigines.
1790	N.S.W.—"Second Fleet" reached Port Jackson. Landing of the New South Wales Corps. Severe suffering through lack of provisions. First circumnavigation of Australia by Lieut. Ball.
1791	N.S.W.—1st Exploration Map of Australia published. Arrival of "Third Fleet." Territorial seal brought by King.
1792	N.S.W.—Visit of <i>Philadelphia</i> , first foreign trading vessel. Population, 4203.
1793	N.S.W.—First free immigrants arrived in the <i>Bellona</i> . First Australian church opened at Sydney. Tas.—D'Entrecasteaux discovered the Derwent River.
1794	N.S.W.—Establishment of settlement at Hawkesbury River.
1795	N.S.W.—Erection of the first printing press at Sydney. Descendants of strayed cattle discovered at Cowpastures, Nepean River.
1796	N.S.W.—First Australian theatre opened at Sydney. Coal discovered by fishermen at Newcastle.
1797	N.S.W.—Introduction of merino sheep from Cape of Good Hope.
1798	Tas.—Tasmania proved an island by voyage of Bass and Flinders.
1800	N.S.W.—First export of coal. First Custom House in Australia established at Sydney. Flinders' charts published. First issue of copper coin. Population, 5995.
1801	N.S.W.—First colonial manufacture of blankets and linen.
1802	Vic.—Discovery of Port Phillip by Lieut. Murray. S.A.—Discovery of Spencer's and St. Vincent Gulfs by Flinders. Q'land.—Discovery of Port Curtis and Port Bowen by Flinders.
1803	N.S.W.—First Australian wool taken to England by Capt. Macarthur. Issue of "The Sydney Gazette," first Australian newspaper. Vic.—Attempted colonisation of Port Phillip by Collins. Discovery of Yarra by Grimes. Tas.—First settlement formed at Risdon by Lieut. Bowen.
1804	N.S.W.—Insurrection of convicts at Castle Hill. Vic.—Abandonment of settlement at Port Phillip. Tas.—Foundation of settlement at Hobart by Collins, and at Yorktown by Colonel Paterson.
1805	N.S.W.—First extensive sheep farm established at Camden by Capt. Macarthur. Portion of settlers from Norfolk Island transferred to Tasmania.
1806	N.S.W.—Shortage of provisions. Floods. Tas.—Settlement at Launceston.
1807	N.S.W.—Final shipment of convicts from Norfolk Island. First shipment of merchantable wool (245 lbs.) to England.
1808	N.S.W.—Deposition of Governor Bligh.
1810	N.S.W.—First post-office established at Sydney. First race meeting in Australia at Hyde Park, Sydney. Population, 11,590. Tas.—First Tasmanian newspaper printed.
1813	N.S.W.—Passage across Blue Mountains discovered by Wentworth, Lawson, and Blaxland. Macquarie River discovered by Evans.

- 1814 N.S.W.—Australia, previously known as "New Holland," received present name on recommendation of Flinders. Creation of Civil Courts.
- 1815 N.S.W.—Town of Bathurst founded by Governor Macquarie. First steam engine in Australia erected at Sydney. Lachlan River discovered by Evans. Tas.—Arrival of first immigrant ship with free settlers. First export of wheat to Sydney. Port Davey and Macquarie Harbour discovered by Captain Kelly.
- 1816 N.S.W.—Botanic Garden formed at Sydney.
- 1817 N.S.W.—Oxley's first exploration inland. Discovery of Lakes George and Bathurst and the Goulburn Plains by Meehan and Hume. First bank in Australia opened at Sydney. Tas.—Great prosperity in wool and whaling industries.
- 1818 N.S.W.—Cessation of free immigration. Liverpool Plains, and the Peel, Hastings, and Manning Rivers discovered by Oxley, and Port Essington by Captain King.
- 1819 N.S.W.—First Australian Savings Bank at Sydney opened.
- 1820 N.S.W.—Foundation of Campbelltown. Clyde River discovered by Lieut. Johnson. Tas.—First importation of pure merino sheep.
- 1821 N.S.W.—Foundation of Philosophical (now Royal) Society. Population, 35,610. Tas.—Establishment of penal settlement at Macquarie Harbour. First Circuit Court held at Hobart.
- 1822 N.S.W.—Formation of Agricultural Society of N.S.W.
- 1823 N.S.W.—First Australian Constitution. Discovery of gold at Fish River by Assistant-Surveyor McBrien. Arrival in Sydney of Dr. John Dunmore Lang. Qld.—Brisbane River discovered by Oxley.
- 1824 N.S.W.—Became a Crown Colony. Executive Council formed. Establishment of Supreme Court at Sydney, and introduction of trial by jury. First Australian Enactment (Currency Bill) passed by the Parliament at Sydney. Proclamation of freedom of the press. First land regulations. First manufacture of sugar. Vic.—Hume and Hovell, journeying overland from Sydney, arrived at Corio Bay. Qld.—Penal settlement founded at Moreton Bay (Brisbane). Fort Dundas Settlement formed at Melville Island, N. Terr.
- 1825 Tas.—Proclamation of Independence of Van Diemen's Land (Tasmania) and appointment of a nominated Legislative Council for the new colony.
- 1826 N.S.W.—Illawarra founded by Captain Bishop. Vic.—Settlement at Corinella, Western Port, formed by Captain Wright. W.A.—Military Settlement founded at King George's Sound, Albany, by Major Lockyer.
- 1827 N.S.W.—Colony became self-supporting. Feverish speculation in land and stock Qld.—Darling Downs and the Condamine River discovered by Allan Cunningham. Fort Wellington established at Raffles Bay, N. Terr. Tas.—Copper ore discovered at Macquarie Harbour.
- 1828 N.S.W.—Second Constitution. First Census. Sturt's expedition down Darling River. Cotton first grown in Sydney Botanical Gardens. Gas first used at Sydney. Richmond and Clarence Rivers discovered by Captain Rous. Vic.—Abandonment of settlement at Western Port. Qld.—Cunningham discovered a route from Brisbane to the Darling Downs, and explored Brisbane River to its source. Tas.—First land sales.
- 1829 N.S.W.—Sturt's expedition down Murrumbidgee River. New South Wales Act proclaimed. All English law, so far as circumstances of the Colony allowed, came into force. W.A.—Foundation of settlement at Swan River, under command of Lieut.-Governor Stirling. Perth also founded.
- 1830 N.S.W.—Insurrection of convicts at Bathurst. Sturt, voyaging down Murrumbidgee and Murray Rivers, arrived at Lake Alexandrina. Qld.—Murder of Captain Logan by convicts at Brisbane. Tas.—Trouble with natives. Black line organised to force aborigines into Tasman's Peninsula, but failed. Between 1830 and 1835, however, George Robinson, by friendly suasion, succeeded in gathering the small remnant of aborigines (203) into settlement at Flinders Island.
- 1831 N.S.W.—Crown lands first disposed of by public competition. Mitchell's explorations north of Liverpool Plains. Arrival at Sydney of first steamer, *Sophia Jane*, from England. S.S. *Surprise*, first steamship built in Australia, launched at Sydney. First coal shipped from Australian Agricultural Company's workings at Newcastle, N.S.W. First assisted immigration to N.S.W. S.A.—Adelaide district discovered by Captain Barker. Murder of Barker by aborigines at Lake Alexandrina. Wakefield's first colonisation committee. W.A.—Appointment of Executive and Legislative Council. First newspaper—"Fremantle Observer." Lord Ripon's land regulations in N.S.W., W.A., and Tas.
- 1832 N.S.W.—Savings Bank of N.S.W. established.

- 1833 N.S.W.—First School of Arts established at Sydney.
- 1834 N.S.W.—First settlement at Twofold Bay. Vic.—Settlement formed at Portland Bay by Henty Bros. Qld.—Leichhardt reached Gulf of Carpentaria. S.A.—Formation of the South Australian Association. Imperial Act Colonisation of S.A. W.A.—Severe reprisals against natives at Pinjarrah.
- 1835 N.S.W.—Establishment of depot at Fort Bourke on the Darling River, by Mitchell. Vic.—John Batman arrived at Port Phillip; made treaty with the natives for 600,000 acres of land; claim afterwards disallowed by Imperial Government. John Pascoe Fawkner founded Melbourne.
- 1836 N.S.W.—Mitchell's overland journey from Sydney to Cape Northumberland, Vic., "Squatting" formally recognised. Vic.—Proclamation of Port Phillip district as open for settlement. Captain Lonsdale first Resident Magistrate. S.A.—Settlement founded at Adelaide under Governor Hindmarsh.
- 1837 N.S.W.—Appointment in London of Select Committee on Transportation. Vic.—Melbourne planned and named by Governor Bourke. First Victorian post-office established in Melbourne. First sale of Crown lands in Melbourne. First overlanders from Sydney arrived at Port Phillip. S.A.—Adelaide planned by Captain Light. First newspaper published, and first sale of Crown lands in Adelaide.
- 1838 N.S.W.—Discontinuance of assignment of convicts. Drought and failure of crops. Frenzied speculation. Vic.—First Victorian paper published at Melbourne. Qld.—Settlement of German missionaries at Brisbane. S.A.—"Overlanding" of cattle from Sydney to Adelaide along the Murray route by Hawden and Bonney. Settlement at Port Essington, Northern Territory, formed by Captain Bremer.
- 1839 N.S.W.—Gold found at Vale of Clwydd by Count Strzelecki. Vic.—Appointment of Mr. C. J. La Trobe as Superintendent Port Phillip district. S.A.—Lake Torrens discovered by Eyre. Port Darwin discovered by Captain Stokes. W.A.—Murchison River discovered by Captain Grey.
- 1840 N.S.W.—Abolition of transportation to New South Wales. Land regulations—proceeds of sales to be applied to payment for public works and expenditure on immigration. Foundation of viticultural industry. Monetary crisis. Vic.—Determination of northern boundary. Colonists desire separation. Qld.—Penal settlements broken up and Moreton Bay district thrown open. S.A.—Incorporation of Adelaide. Eyre began his overland journey from Adelaide to King George's Sound. Tas.—Visit of the *Erebus* and *Terror* to Hobart. Dr. Hooker investigated the island flora.
- 1841 N.S.W.—Gold found near Hartley by Rev. W. B. Clarke. Separation of New Zealand. W.A.—Completion of Eyre's overland journey from Adelaide to King George's Sound. Tas.—Renewal of transportation.
- 1842 N.S.W.—Incorporation of Sydney. Vic.—Incorporation of Melbourne. S.A.—Discovery of copper at Kapunda.
- 1843 N.S.W.—First Representative Constitution. First manufacture of tweed. Financial crisis. Qld.—Moreton Bay granted legislative representation. Tas.—Agitation against further introduction of convicts.
- 1844 S.A.—Sturt's last expedition inland. Qld.—Leichhardt's expedition from Condamine River to Port Essington.
- 1845 N.S.W.—Mitchell's explorations on the Barcoo. Qld.—Explorations by Mitchell and Kennedy. S.A.—Discovery of the Burra copper deposits. Sturt discovered Cooper's Creek. W.A.—First steam vessel (*H.M.S. Driver*) visited Fremantle.
- 1846 N.S.W.—Mr. Gladstone proposed to revive transportation. Initiation of meat preserving. Qld.—Foundation of settlement at Port Curtis. S.A.—Proclamation of North Australia. W.A.—Organisation of first mining company. Foundation of New Norcia Mission.
- 1847 N.S.W.—Crown Land Leases Act. Iron smelting commenced near Berrima. Overland mail established between Sydney and Adelaide. Vic.—Melbourne created a City. Qld.—Explorations by Leichhardt, Burnett and Kennedy. W.A.—Issue of regulations for leasing Crown lands. First export of guano.
- 1848 N.S.W.—Attempts to revive transportation. Influx of Chinese. Qld.—Leichhardt's last journey. Kennedy speared by the blacks at York Peninsula. Chinese brought in as shepherds. W.A.—Copper and lead discovered in the Champion Bay district by the Messrs. Gregory.

- 1849 N.S.W.—Indignation of colonists at arrival of convict ship *Hashemy*. Exodus of population to goldfields of California. Vic.—*Randolph* prevented from landing convicts. Qld.—Assignment of convicts per *Hashemy* to squatters on Darling Downs. W.A.—Commencement of transportation to Western Australia.
- 1850 N.S.W.—Final abolition of transportation. First sod of first Australian railway turned at Sydney. University incorporated. Vic.—Gold discovered at Clunes by Hon. W. Campbell. Representative government granted. S.A.—Representative government granted. W.A.—Pearl oysters found by Lieut. Helpman at Saturday Island Shoal. Tas.—Representative government granted. Discovery of coal at the Don and Mersey.
- 1851 N.S.W.—Payable gold discovered by Hargraves at Lewis Ponds and Summerhill Creeks. Telegraph first used. Vic.—Separation of Port Phillip—erected into independent colony under the name of Victoria. Discovery of gold in various localities. "Black Thursday," Feb. 6th, a day of intense heat, when several persons died and a vast amount of damage to property was occasioned by fires. Qld.—Agitation for separation from New South Wales. S.A.—Financial depression. Tas.—Serious exodus of population to goldfields on mainland. W.A.—Proclamation of Legislative Council Act.
- 1852 N.S.W.—Destruction of Gundagai by flood—77 lives lost. Arrival of the *Chusan*, first P. and O. mail steamer from England. S.A.—First steamer ascends the Murray River to the junction with the Darling. Tas.—Meeting of first elective Council protests against transportation. Payable gold discovered at The Nook, near Fingal, and at Nine Mile Springs.
- 1853 Vic.—University established. Tas.—Abolition of transportation.
- 1854 N.S.W.—Russian war-scare and volunteer movement. Vic.—Opening of first Australian railway—Flinders Street to Port Melbourne. Riots on Ballarat goldfields. Storming of the Eureka Stockade, Dec. 3rd.
- 1855 N.S.W.—Opening of railway—Sydney to Parramatta. Introduction of responsible Government. Mint opened. Vic.—Proclamation of Constitution. Qld.—Gregory's expedition in search of Leichhardt. Tas.—Responsible government introduced.
- 1856 N.S.W.—First elective Parliament. Pitcairn Islanders placed on Norfolk Island, which was placed under jurisdiction of Governor of New South Wales. Vic.—First Parliament under responsible government. S.A.—Responsible government introduced. Tas.—First Parliament under responsible government. W.A.—A. C. Gregory's expedition in search of Leichhardt.
- 1857 N.S.W.—Heavy floods. Wreck of the *Dunbar* (119 lives lost), and *Catherine Adamson* (21 lives lost), at Sydney Heads. Select Committee on Federation. Vic.—Manhood suffrage established. S.A.—First Parliament under responsible government. Exploration by Babbage and Warburton. Passage of Torrens' Real Property Act.
- 1858 N.S.W.—Establishment of manhood suffrage and vote by ballot. Telegraphic communication between Sydney, Melbourne and Adelaide. S.A.—Stuart's explorations. Qld.—The Canoona gold rush.
- 1859 Qld.—Proclamation of Queensland as separate colony. Tas.—First submarine cable, via Circular Head and King Island, to Cape Otway.
- 1860 N.S.W.—Disastrous floods on the Shoalhaven and at Araluen. Vic.—Burke and Wills left Melbourne on their journey across Continent. Qld.—First Parliament under responsible government. S.A.—Copper discoveries at Wallaroo and Moonta.
- 1861 N.S.W.—Anti-Chinese riots at Lambing Flat and Burrangong goldfields. Opening of first tramway in Sydney. Robertson's Land Acts. Messrs. Parkes and Dalley proceeded to London as emigration lecturers. Regulation of Chinese immigration. Vic.—Conference of Statisticians, Melbourne. Burke and Wills perished at Cooper's Creek, near Innamincka, S.A. W.A.—Exploration of F. Gregory in the North-west.
- 1862 N.S.W.—Raid by bushrangers on the Lachlan gold escort (£14,000 taken). Abolition of State aid to religion. Real Property Act. Vic.—C. Gavan Duffy's Land Act. Qld.—McKinlay's explorations. Heavy floods on Fitzroy River. S.A.—Stuart crossed the Continent from south to north. W.A.—Severe floods—damage to property, £30,000. First export of pearl-shell.
- 1863 N.S.W.—Bathurst and Canowindra "held up" by bushranger Gilbert. Vic.—Inter-colonial conference at Melbourne. S.A.—Northern Territory taken over. W.A.—Initiation of settlement in the North-west district. Establishment of Post Office (now Government) Savings Bank.

- 1864 N.S.W.—Frequent outrages by bushrangers. Qld.—First railway begun and opened. First sugar made from Queensland cane. W.A.—Messrs. Panton, Harding and Goldwyer murdered by natives. Tas.—First successful shipment of English salmon ova.
- 1865 N.S.W.—Destruction by fire of St. Mary's Cathedral, Sydney.
- 1866 N.S.W.—Passage of Public Schools Act of (Sir) Henry Parkes. Vic.—Political deadlock. Qld.—Financial crisis. S.A.—Introduction of camels for exploration, etc.
- 1867 Vic.—Imposition of protective tariff. Qld.—Discovery of gold at Gympie.
- 1868 N.S.W.—Attempted assassination of the Duke of Edinburgh at Clontarf, near Sydney. Qld.—Passage of Act to regulate island labour traffic. W.A.—Arrival of the *Hougomont*, last convict ship. Tas.—First sod of first railway (Launceston and Western) turned by Duke of Edinburgh.
- 1869 N.S.W.—Establishment of Eskbank Iron Company. Vic.—Reduction of property qualification for members and electors of Legislative Council. W.A.—First telegraph line opened from Perth to Fremantle. Tas.—Second cable opened.
- 1870 N.S.W.—Intercolonial Exhibition opened at Sydney. Imperial troops withdrawn. Vic.—Intercolonial Congress at Melbourne. S.A.—Commencement of transcontinental telegraph. W.A.—Meeting of first Legislative Council under responsible government.
- 1871 N.S.W.—Permanent military force raised. Vic.—Increase of protective duties. W.A.—Passage of Elementary Education Act. Forrest's explorations. Tas.—Discovery of tin at Mount Bischoff. Launceston-Western railway opened for traffic.
- 1872 N.S.W.—International Exhibition at Sydney. Death of W. C. Wentworth. Vic.—Mint opened. Qld.—Discovery of tin at Stanthorpe, copper at Mt. Perry, coal at Wide Bay, gold at the Palmer. S.A.—Cable from Java to Port Darwin. Completion of transcontinental telegraph line. W.A.—Cyclonic storms—destruction of town of Roebourne. Tas.—Completion of direct telegraphic communication with England.
- 1873 N.S.W.—Intercolonial Conference at Sydney. First volunteer encampment. Inauguration of mail service with San Francisco. W.A.—Warburton crossed from transcontinental telegraph line to head of De Grey River.
- 1874 N.S.W.—Triennial Parliaments Act passed. Intercolonial Conference. Qld.—Dalrymple's discoveries on north-eastern seaboard. S.A.—Adelaide University founded. W.A.—Explorations by E. Giles. John and Alexander Forrest arrived at Overland Telegraph from Murchison.
- 1875 Qld.—Transfer of Port Albany Settlement to Thursday Island. S.A.—Wreck of the *Gothenburg*—Judge Wearing and other well-known Adelaide citizens drowned. Education Act passed. Explorations by Giles, Gosse, and Warburton. Tas.—Conference of Statisticians, Hobart.
- 1876 N.S.W.—Completion of cable—Sydney (La Prouse) to Wellington (Wakapuaka). Vic.—Members of Legislative Assembly increased to 86. W.A.—Violent gale at Exmouth Gulf, number of pearling vessels wrecked, 69 lives lost. Giles crosses colony from east to west. Tas.—Death of Truganini, last representative of Tasmanian aborigines.
- 1877 Vic.—Deadlock on question of payment to members. W.A.—Opening of telegraphic communication with South Australia. Tas.—Discovery of rich gold-bearing quartz reef at Beaconsfield.
- 1878 N.S.W.—Seamen's strike. Vic.—Visit to England of Victorian delegation re alteration of Victorian Constitution. "Black Wednesday"—wholesale dismissal of civil servants. Qld.—Restriction of Chinese immigration.
- 1879 N.S.W.—First artesian bore at Killara. International Exhibition at Garden Palace, Sydney. First steam tramway. First issue of silver coin from Mint. W.A.—Celebration of 50th anniversary of foundation of colony. A. Forrest's explorations in the Kimberley district, and discovery of the Fitzroy pastoral country.
- 1880 N.S.W.—Public Instruction Act passed. Sydney streets partially wood-paved. Vic.—Opening of first Victorian International Exhibition at Melbourne. Federal Conference, at Melbourne and Sydney.
- 1881 N.S.W.—Further restrictions on Chinese immigration. Vic.—Reduction of property qualification for members and electors of Legislative Council, number of members increased to 42. W.A.—Cyclone near Roebourne wrecked number of pearling vessels. On the Ashburton, 1000 sheep destroyed by cyclone. First simultaneous Australian Census, population 2,250,194. Visit to Australia of T.R.H. Prince Albert Victor and Prince George of Wales.



- 1882 N.S.W.—Garden Palace destroyed by fire. W.A.—Nugget of gold found between Roebourne and Cossack.
- 1883 N.S.W.—Discovery of silver at Broken Hill. Completion of railway between New South Wales and Victoria. Qld.—Annexation of New Guinea—repudiated by Imperial authorities.  
Federal Conference held at Sydney. Federal Council created.
- 1884 N.S.W.—Land legislation restricting sales by auction. Vic.—Appointment of First Public Service Board. W.A.—Stockdale's explorations.  
Federation Bill passed in Victoria and rejected in New South Wales. British protectorate declared over New Guinea.
- 1885 N.S.W.—Military contingent sent to the Soudan. Opening of the Broken Hill Proprietary Silver Mines. Qld.—Agitation for division of the colony. W.A.—Gold found by prospectors on the Margaret and Ord Rivers in the Kimberley district. Tas.—Silver-lead discovered at Mount Zeehan.
- 1886 N.S.W.—Industrial depression. Wreck of the *Ly-ee-Moon*, *Coringamite*, and *Helen Nicol*. S.A.—Celebration of jubilee of foundation of colony. W.A.—Proclamation of Kimberley goldfields. Tas.—Discovery of gold and copper at Mount Lyell.  
First session of Federal Council met at Hobart on the 26th January.
- 1887 N.S.W.—Disaster at Bulli coal mine (81 lives lost). Peat's Ferry (Hawkesbury River) railway accident. S.A.—International Exhibition at Adelaide. W.A.—Cyclone destroyed nearly the whole pearling fleet off the Ninety-Mile Beach—200 lives lost. Gold discovered at Yilgarn and Southern Cross. Australasian Conference in London. Australasian Naval Defence Force Act passed.
- 1888 N.S.W.—Destructive bush fires. Centennial celebrations. Restrictive legislation against Chinese, imposing poll-tax of £100. Strike of coal-miners at Newcastle. Vic.—Second Victorian International Exhibition held at Melbourne. Members of Legislative Council increased to 48, and of Assembly to 95. Qld.—Railway communication opened between Sydney and Brisbane. W.A.—Favenc's explorations.  
Centenary of first settlement in Australia. Conference of Australian Ministers at Sydney to consider question of Chinese immigration. First meeting of the Australasian Association for the Advancement of Science held in Sydney. Imperial Defence Act passed.
- 1889 N.S.W.—Destructive floods, Hunter River. Qld.—Direct railway communication established between Brisbane and Adelaide. W.A.—Framing of new Constitution. Tas.—University founded.
- 1890 N.S.W.—Strike at Broken Hill. Maritime and shearers' strikes. Payment of members of Parliament. Destructive bush fires. Qld.—Wreck of the *Quetta*—146 lives lost. Floods and hurricanes. Industrial depression. W.A.—Responsible government granted.  
Meeting at Melbourne of Australasian Federation Conference. Pre-censal Conference of Statisticians at Hobart.
- 1891 N.S.W.—Election to Legislative Assembly of 35 Labour members. Arrival of Australian Auxiliary Squadron. Collapse of several building societies. Cessation of assisted immigration. W.A.—Discovery of gold on the Murchison. Federal Convention in Sydney, draft bill framed and adopted. Second simultaneous Australian census. Population, 3,174,392.
- 1892 N.S.W.—Broken Hill miners' strike. Run on Government Savings Bank. Women's College, Sydney University opened. Vic.—Suspension of Railway Commissioners. W.A.—Discovery of gold by Messrs. Bayley and Ford at Coolgardie.
- 1893 N.S.W.—Departure by the *Royal Tar* of colonists for "New Australia." Electoral Act—"One man one vote." Financial crisis, chiefly affecting the eastern States. Qld.—Brisbane floods.
- 1894 N.S.W.—Shearers' strike. S.A.—Adult Suffrage Bill assented to. Industrial depression.
- 1895 N.S.W.—Crown Lands Act of 1895. Free-trade tariff. Land and income taxes introduced.  
Conference of Premiers at Hobart *re* Federation.
- 1896 N.S.W.—People's Federal Convention at Bathurst. S.A.—Departure of Calvert expedition.
- 1897 S.A.—Floods and storms at Adelaide. Death of Sir Thomas Elder. Earthquake and hurricane in Northern Territory. Town of Palmerston destroyed.
- 1897-8 Sessions of Federal Convention at Adelaide, Sydney and Melbourne.

- 1898 N.S.W.—First surplus of wheat for export.  
Draft Federal Constitution Bill submitted to electors in Victoria, New South Wales, South Australia, and Tasmania. Requisite statutory number of votes not obtained in New South Wales.
- 1899.—First contingent of Australian troops sent to South Africa. Conference of Premiers in Melbourne to consider amendments to Federal Constitution Bill. Referendum—Bill accepted by New South Wales, Victoria, Queensland, South Australia, and Tasmania.
- 1900 N.S.W.—Old-age pensions instituted. W.A.—Agitation for separation by gold-fields. Strike of railway engine drivers and firemen.  
Contingents of naval troops sent to China.  
Commonwealth Constitution Act received Royal Assent, 9th July. Mr. (afterwards Sir) Edmund Barton formed first Federal Ministry.
- 1901 Vic.—Old-age Pensions instituted.  
Proclamation of the Commonwealth at Sydney. First Federal Parliament opened at Melbourne by the Duke of Cornwall and York. Simultaneous Australasian Census—population of the Commonwealth, 3,773,801. Interstate freetrade established.
- 1902 N.S.W.—Disastrous explosion at Mount Kembla Colliery—95 lives lost. Women's franchise granted. Jubilee of Sydney University. S.A.—Reduction of number of members of both Houses of Parliament. W.A.—Opening of pumping station at Northam in connection with Goldfields water supply.  
First Federal Tariff.
- 1903 Vic.—Railway Strike (Enginemen). W.A.—Coolgardie and Kalgoorlie water supply scheme completed.  
Inauguration of the Federal High Court. Conference of Statisticians in Melbourne.
- 1904 N.S.W.—Reduction of members of Legislative Assembly from 125 to 90.
- 1905 N.S.W.—Re-introduction of assisted immigration.
- 1906 Wireless telegraphy installed between Queenscliff, Vic., and Devonport, Tas. Conference of Statisticians of Australian States and New Zealand. Papua taken over by Commonwealth.
- 1907 N.S.W.—Strike of coal-miners. Vic.—Bakers' strike, Melbourne. Telephone, Sydney to Melbourne, opened.  
Imperial Conference in London. Introduction of new tariff in Federal Parliament. Preference to United Kingdom. Allowance to Federal members of Parliament increased from £400 to £600.
- 1908 N.S.W.—Tramway employees' strike, Sydney. Vic.—Railway accident at Braybrook Junction (Sunshine)—44 killed, 412 injured; compensation paid, £126,000.  
Yass-Canberra chosen as site of Federal Capital. Interstate Premiers' Conference at Melbourne. Visit of American Fleet to Australia.
- 1909 N.S.W.—Miners' strikes at Broken Hill and Newcastle. Qld.—University established. S.A.—*Clan Ranald* foundered in St. Vincent's Gulf—40 drowned. W.A.—Cyclone at Broome.  
Imperial Defence Conference in London—Commonwealth ordered two destroyers and one first-class cruiser for fleet unit. Visit of Lord Kitchener to report and advise on Commonwealth military defence. Loss of the *Waratah* with 300 passengers and crew.
- 1910 Vic.—Railway accident at Richmond—9 killed, over 400 injured; compensation paid £129,000. S.A.—Strike of transport workers at Adelaide. W.A.—Cyclone at Broome—several pearling vessels wrecked, 3 whites and many coloured fishermen drowned. Strike of tramway employees at Perth. Wreck of the *Pericles* off Cape Leeuwin.  
Rt. Hon. Sir G. H. Reid appointed High Commissioner for the Commonwealth in London. Referendum on financial relations between the Commonwealth and the States. Proclamation taking over Yass-Canberra (in New South Wales) as site for Federal Capital. Penny postage. Visit of Scottish Agricultural Commission. Dutch squadron visited Australia. Arrival of the *Yarra* and *Parramatta*, first vessels of Australian navy. Australian Notes Act passed and first Commonwealth notes issued. Admiral Sir R. Henderson visited Australia to advise on naval defence.

- 1911 First Federal Census—population of the Commonwealth, 4,455,005. Transfer of Northern Territory to Commonwealth. Federal referenda relating to Monopolies and Industrial Legislation—proposals rejected. Introduction of compulsory military training. Launch of Commonwealth destroyer *Warrego* at Sydney. Establishment of penny postage to all parts of British Empire. Western Australian University founded.
- 1912 Commonwealth Bank opened. First payments of Maternity Bonus. First sod turned at Port Augusta of Trans-Australian Railway (Port Augusta to Kalgoorlie). Administrators to Northern and Federal Territories appointed. Gift of £1,000,000 to charities by Mrs. Walter Hall, Sydney, N.S.W. Numerous industrial disturbances.
- 1913 Arrival of battle cruiser *Australia*, and cruisers *Melbourne* and *Sydney*. Foundation stone of Commonwealth Building in London laid by the King. Federal Capital named Canberra and foundation stone laid. Appointment of Interstate Commission. Visit of Empire Trade Commission. Visit of Members of Empire Parliamentary Association.
- 1914 Visit of General Sir Ian Hamilton to report on military defence scheme. Double dissolution of Federal Parliament. Visit of British Association for the Advancement of Science. Serious drought affecting almost the whole of the C'wealth. S.A.—Increase of numbers of members of both Houses of Parliament.
- European War. Australian Navy transferred to Imperial Navy. Captured vessels added to Australian fleet. Submarine AE1 lost at sea whilst in service in the vicinity of New Britain. German Pacific possessions seized by Australian expeditionary force (military and naval). Australian troops offered to, and accepted by Imperial Government. By 31st December, 31,000 volunteers of all ranks had left Australia for service overseas. Portion of Australian army was also mobilised and kept under arms till the destruction of the German Pacific fleet. German Cruiser *Emden* destroyed at North Cocos Island by H.M.A.S. *Sydney*.
- 1915 Opening of Broken Hill Proprietary's Ironworks at Newcastle, N.S.W. Mr. Fisher appointed High Commissioner for the Commonwealth. Referendum for purpose of giving increased powers to the Commonwealth abandoned. Navy Department created. Formation of Australian Wheat Board.
- Australian troops landed at Dardanelles on April 25th. Loss of Submarine AE2 in operations at the Dardanelles. Census taken of Wealth and Income, and of Males in Australia between ages of 17 and 60. Subscriptions to Commonwealth War Loan, £13,000,000. Australian troops withdrawn from Gallipoli on December 19th. At end of year about 250,000 troops had been despatched from Australia or were in training.
- 1916 Record wheat harvest (180,000,000 bushels). Special recruiting campaign instituted. Australian troops transferred to France. Up to June, 262,000 troops had left Australia or were in training. Acquisition of steamships by the Commonwealth. First Military Service Referendum. Strike of coal miners at Newcastle. Moratorium Regulations passed.
- 1917 National Ministry formed. Commonwealth elections. General strike. Kalgoorlie-Port Augusta railway completed. Up to October, 313,000 troops had left the Commonwealth or were in training. Second Military Service Referendum. Daylight Saving introduced and abandoned.

# OFFICIAL YEAR BOOK

OF THE

## COMMONWEALTH OF AUSTRALIA, 1917,

AND EARLIER YEARS.

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### SECTION I.

#### STATISTICAL ORGANISATION AND SOURCES OF INFORMATION.

##### § 1. Introduction.

1. **Development of Australian Statistics.**—In the first issue of the Commonwealth Official Year Book (No. 1, 1901-1907), an account was given of the origin and development of Australian Statistics; *vide* pp. 1 to 16 therein. Owing to considerations of space, however, this matter was considerably curtailed in succeeding Year Books, and appears in No. 4 on pp. 1 to 4. In the following issues, a still further curtailment has been made in order to make room for new matter.

Briefly, it may be stated that to the "Blue Books" compiled in Australia for the Imperial authorities, there succeeded, under Responsible Government, the statistics which each of the departments prepared for itself. State statistical departments were organised later, principally as collecting agencies of official and general information.

Owing to absence of co-ordination in collection and compilation, due to the organisation, independently, of the various States bureaux, there were difficulties in so combining State statistics as to get a satisfactory statistic for Australia as a whole, and various conferences of State Statisticians did not completely rectify the divergencies that had arisen.

(i.) *Creation of the Commonwealth Bureau of Census and Statistics.* Constitutionally, matters relating to "Census and Statistics" belong to the Commonwealth, and in 1906, under the authority of the Census and Statistics Act of 1905, providing for the taking of the Census and the collecting of general statistics, the Commonwealth Bureau of Census and Statistics was created. A conference of statistical representatives of Australian States and New Zealand, under the presidency of the Commonwealth Statistician, met in November and December, 1906. For a more or less complete presentation of the affairs of the Commonwealth and of its constituent parts, various desiderata were recognised, and a series of resolutions adopted by the conference. Identity of categories, simultaneity and identity in methods of collection, and uniformity in compilation, were the main features desired. A resumé of the resolutions of this conference is given in Year Book No. 1, pp. 12-16.

(ii.) *Organisation of the Commonwealth Bureau of Census and Statistics.* In the organisation of the Bureau, while all classes of work may at any time be relegated to any officer, certain fields of activity are attended to mainly by the officers mentioned

hereunder, who, subject to the general direction of the Statistician, supervise the work of the different branches:—

JOHN STONHAM, M.A. (Sydney). Chief Compiler; and general administration.

CHARLES HENRY WICKENS, A.I.A. Supervisor of Census.

HENRY SPONDLY (Zurich University). Vital Statistics and cognate matters.

EDWARD TANNOCH MCPHEE. Trade and Customs Statistics and Commerce.

GERALD LIGHTFOOT, M.A. (Cambridge), Barrister at Law. Industrial and Social Statistics.

FREDERICK DALGLISH ROSSITER, M.A. (Melbourne). Defence; general control of Library, etc.

FREDERICK WILLIAM BARFORD, M.A. (Oxford), A.I.A. Financial Statistics.

**2. Sources of Information.**—Statistical information is furnished (i.) by the State Statistical Bureaux, as a result of direct demand, or through the police and special collectors; (ii.) by Commonwealth and State Departments (see lists of publications in § 2 *infra*); (iii.) in respect of returns of Trade, Customs and Excise, by the Trade and Customs Department; (iv.) by scientific and technical experts, specially requisitioned to write on particular subjects; (v.) by State Statisticians, as officers duly constituted under the Commonwealth Census and Statistics Act; (vi.) and by information supplied compulsorily, on the Commonwealth Statistician's demand.

**3. Maintenance of Secrecy.**—Under no circumstance can information supplied to a statistical office be used against the individual supplying it. All statistical enquiries are strictly impersonal, and the affairs of individuals or individual businesses are never disclosed. No other Government Department can make use of the Statistical Departments in order to acquire detailed information otherwise unavailable.

**4. Accuracy Essential.**—The importance of accurate statistical information is emphasised. The making of untrue statements is heavily penalised.

## § 2. Statistical Publications of Australia.

**1. Introductory.**—The official statistical publications of Australia may be divided bibliographically into two main divisions, viz.:—(1) Commonwealth publications dealing both individually and collectively with the several States of the Commonwealth, and (2) State publications dealing with individual States only. Besides these there are many other reports, etc., issued regularly, which, though not wholly statistical, necessarily contain a considerable amount of statistical information. The principal of these published to August 1918, are included in the lists given hereunder.

**2. Commonwealth Publications.**—Commonwealth publications may be grouped under two heads, viz.:—(i.) Publications issued by the Commonwealth Statistician, and (ii.) Parliamentary and Departmental Reports and Papers.

(i.) *Publications issued by the Commonwealth Statistician.* The following is a list of statistical publications issued from the Commonwealth Bureau of Census and Statistics since its inauguration up to August 1918. The Demography, Finance, Production, and Transport and Communication Bulletins cover statistics from 1901. The Year Book contains figures from earlier years.

*Australian Life Tables, 1901-1910. Australian Joint Life Tables, 1901-1910.*

*Census Bulletins.*—No. 1.—Population of States and Territories; No. 2—Persons of Non-European Race; No. 3—Ages; No. 4—Population of Counties, Local Government Areas, etc.; No. 5—Population of Electoral Divisions, Provinces, and Districts; No. 6—Birthplaces; No. 7—Length of Residence in Australia; No. 8—Religions; No. 9—Education; No. 10—Blindness and Deafmutism; No. 11—Schooling; No. 12—Conjugal Condition; No. 13—Localities; No. 14—Mortality Investigation; No. 15—Families; No. 16—Occupations; No. 17—Occupied Dwellings.

*Census Results.* Vol. I., Report. Vol. II. (parts 1-8). Vol. III. (parts 9-14). Part 1—Ages; part 2—Birthplaces; part 3—Residence; part 4—Education; part 5—Schooling; part 6—Religions; part 7—Infirmities; part 8—Aliens; part 9—Conjugal; part 10—Families; part 11—Life Tables; part 12—Occupations; part 13—Dwellings; part 14—Summary.

*Finance*—Bulletins, annually, 1907 to 1915-16. (Hereafter to be published biennially).

*Inquiry into the Cost of Living in Australia*, 1910-11.

*Labour and Industrial Statistics*—Explanatory Memorandum on the Proposed Scheme. Report No. 1—Prices, Price-Indexes and Cost of Living in Australia. No. 2—Trade Unionism, Unemployment, Wages, Prices, and Cost of Living in Australia, 1891 to 1912. No. 3—Manufacturing Industries in the Commonwealth, 1912. No. 4—Expenditure on Living in the Commonwealth, November, 1913. *Annual Reports*—Prices, Purchasing Power of Money, Wages, Trade Unions, Unemployment, and General Industrial Conditions: No. 5—1913-14; No. 6—1915; No. 7—1916; No. 8—1917.

*Labour Bulletins*—Quarterly, March 1913 to June 1917.\*

*Monthly Summary of Australian Statistics*—Bulletins Nos. 1 to 69, from January 1912 to September 1917\* (replacing the publication "Trade, Shipping, and Oversea Migration.")

*Official Year Book of the Commonwealth of Australia*—Annually, 1907 to present issue (1918).

*Pocket Compendium of Australian Statistics*, 1913, 1914, 1916 and 1918.†

*Population and Vital Statistics Bulletins*—Determination of the Population of Australia, 1901 to 1906. Commonwealth Demography, annually, 1906 to 1910. Vital Statistics, annually, 1907 to 1910. Commonwealth Demography (comprising matter previously included in two last-named Bulletins), annually, 1911 to 1917. Vital Statistics, quarterly, 1907 to June 1911.\* The Nomenclature of Diseases and of Causes of Death, 1907. New Edition, 1910.

*Production*—Bulletins, annually, 1906 to 1916-7.

*Professional Papers.*—No. 1—The Classification of Diseases and Causes of Death, from the standpoint of the Statistician; Nos. 2 and 3—On the Influence of Infantile Mortality on Birthrate (2 papers); No. 4—On the Statistical Opportunities of the Medical Profession; No. 5—Tuberculosis Duration Frequency Curves, and the number of existing cases ultimately fatal; No. 6—The Problems of Statistics; No. 7—The Evolution and Significance of the Census; No. 8—Census Taking‡; No. 9—Studies in Statistical Representation—On the nature of the curve  $y = Ax^m e^{nx^p}$ ; No. 10—Studies in Statistical Representation—Statistical Application of the Fourier series; No. 11—Suicide in Australia; No. 12—An Extension of the Principle Underlying Woolhouse's Method of Graduation‡; No. 13—The First Commonwealth Census; No. 14—Mathematical Analysis of Climatological Physiology; No. 15—The International Nosological Classification, etc.; No. 16—Secular Progress of Pulmonary Tuberculosis and Cancer, etc.; No. 17—The Improvement in Infantile Mortality, etc.; No. 18—Secular and Annual Fluctuations of Deaths from Several Diseases, etc.; No. 19—Investigations Concerning a Law of Infant Mortality‡; No. 20—Labour and Industrial Statistics§; No. 21—A Study in Proportional Representation||; No. 22—Studies in Statistical Representation, III.—Curves, their Logarithmic Homologues and Antilogarithmic Generatrices.¶

\* Discontinued. Information now included in *Quarterly Summary of Australian Statistics*.  
† Published under the title of Commonwealth Statistical Digest, 1916.

‡ By C. H. Wickens, A.I.A. § By Gerald Lightfoot, M.A. || By F. W. Barford, M.A., A.I.A.  
¶ By G. H. Knibbs, C.M.G., F.S.S., F.R.A.S., and F. W. Barford, M.A., A.I.A.

- Quarterly Summary of Australian Statistics*—Bulletin No. 70, December, 1917 (replacing *Monthly Summary of Australian Statistics*).
- Railway Statistics*—Report on the Desirability of Improved Statistics of Government Railways in Australia, February, 1909.
- Shipping*—Shipping and Oversea Migration, annually, 1906 to 1915-16. (Discontinued.)
- Social Insurance*—Report to the Hon. the Minister of Trade and Customs.
- Social Statistics*.—Bulletins, annually, 1907 to 1915. (Hereafter to be published biennially.)
- Superannuation for the Commonwealth Public Service*—Report to the Hon. the Minister of Home Affairs.
- The Australian Commonwealth: Its Resources and Production*—Annually, 1908 to 1915.
- Trade and Customs*—Trade, and Customs and Excise Revenue, annually, 1906 to 1916-17.
- Trade, Shipping, and Oversea Migration—Monthly, January 1907 to December 1911.\*
- Transport and Communication*—Bulletins, annually, 1906 to 1916. (Hereafter to be published biennially.)
- Wealth*—The Private Wealth of Australia and its Growth, as ascertained by various methods, together with a Report of the War Census in 1915.

(ii.) *Commonwealth Parliamentary and Departmental Reports and Papers*. The following are the principal official reports and papers containing statistical matter which have been issued since the inauguration of the Commonwealth:—

- Advertising: Various publications issued by Department for External Affairs.
- Arbitration: Returns of Awards, Conferences, Agreements, etc., of Arbitration Court.
- Bank: Balance Sheets of Commonwealth Bank, and Reports of Auditor-General.
- Bounties: Returns relating to payments.
- Defence—Commonwealth Military Journal, issued quarterly, since April 1911; Forces Lists: Military, Naval, Cadets; Staff and Gradation Lists, Australian Imperial Force; Manual of War Precautions, various editions; Memorandum by Admiral Sir Reginald Henderson on the Naval Defence of Australia; Memorandum on Australian Military Defence and its progress since Federation; Memorandum on the Defence of Australia, by Field-Marshal Lord Kitchener; Military and Naval Orders; Records of Australian Contingents to the War in South Africa, 1899-1902; Relative Strength of Navies in the Pacific; Report to Admiralty on H.M. Australian Fleet (extracts); Reports on Camps, Canteens at Camps, Courts of Enquiry, Small Arms Factory, Royal Military College, Rifle Clubs, Musketry, Universal Training, Cadets, Physical Training, Army Medical Corps, Organisation and Distribution, Troopships, Naval Bases, Dockyards, Recruiting, Administration, Repatriation, Mobilisation, Finance, etc.; Report of Director of Naval Forces for 1906; Reports of the Military Board, 1905 and 1906; Report on an Inspection of the Military Forces of the Commonwealth by General Sir Ian Hamilton; Synopsis of Report on the Business Branches of the Department by Mr. R. McC. Anderson; *Proposals for the Home Defence of Australia*; Tables of War and Peace Organisation and Establishments: Tables of Establishments, Australian Imperial Force.

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\* Discontinued. Information since included in *Monthly Summary of Australian Statistics* to September 1917; thereafter in *Quarterly Summary of Australian Statistics*.

Electoral—Report of Royal Commission on the Commonwealth Electoral Law and Administration; Returns under Representation Act 1905; Commissioners' Special Reports; Statistics of Commonwealth Elections and Referenda; Statement by Commonwealth Statistician *re* Inflation of Electoral Rolls.

Factories—Reports on Clothing, Cordite, Small Arms, and Harness and Leather Factories.

Federal Capital: Papers and Designs. Reports on Administration.

Fisheries: Reports of the Director on Fishing Experiments carried out by the F.I.S. "Endeavour"; Reports on Pearling Industry; Zoological and Biological Results of Fishing Experiments; Life and Work of H. C. Dannevig.

Fruit Industry: Report of Royal Commission.

High Commissioner of the Commonwealth: Reports, Annual, 1910 to 1914. Reports on Australian Butter Market in England. Visit to Canada and United States.

Historical Records of Australia. Series I., vols. I.—XI.

Home Affairs: Schedule of the Department—Nos. 1 to 23. Bi-monthly Digest; Report on the Business Branches of the Department by Mr. R. McC. Anderson.

Immigrants and Immigration Restriction. Annual returns from 1902.

Industry and Manufactures—Annual Return of Bounties Paid under Manufactures Encouragement Act; Sugar Statistics, from 1901-2, *re* White and Black Labour, Production, Duties, Excise, Bounties, etc.; Report of Royal Commission on Sugar Industry; Reports on Industries (Wool, Apples, Wheat, etc.); Reports and Recommendations of Royal Commission on Pearl Shelling Industry.

Interstate Commission. Reports, Annual from 1914-15 to 1917-18, and special. Invalid and Old-Age Pensions: Statements and Reports.

Land Tax Assessment Act: Annual Reports of Commissioner, from 1910-11.

Lands and Surveys: Report of Conference of Commonwealth Director and States Surveyors-General.

Lighthouses: Reports of Inspections, etc.

Medical—Reports of Institute of Tropical Medicine; Reports on Tropical Diseases; Reports on Death and Invalidity; Report on Secret Remedies; Quarantine Reports.

Meteorologist—Bulletins of Climate and Meteorology of Australia; Rainfall Maps of Australia; Professional Papers and Charts (various); Monthly Meteorological Reports, from January, 1910.

Naturalisation: Returns under Naturalisation Act of 1903.

New Guinea (late German): Statistics.

Norfolk Island: Report of Administration, 1915-16.

Northern Territory—Report of the Government Resident for 1910; Annual Reports of Administrator from 1911; Bulletins Nos. 1 to 17; Miscellaneous Reports.

Papua—Annual Reports from 1910-11; Handbooks, from 1904-5; Miscellaneous Reports.

Parliamentary Papers (miscellaneous). Reports of Committees, Commissions, Conferences, etc.

Patents and Trade Marks Statistics, 1904 to date.

Postal: Report of Postal Services Royal Commission.



Postmaster-General's Department—Statement of Business transacted and details of Receipts and Expenditure, 1907, 1908 and 1909; Annual Reports of Postmaster-General's Department from 1910; Report on the Business Management of Postmaster-General's Department, by Mr. Robert McC. Anderson.

Privy Council: Reports of Judgments.

Public Service Commissioner—Report, 1901-4; and Annual Reports from 1905; and Public Service Lists, annual, from 1903.

Public Works: Reports of Parliamentary Standing Committee.

Railways: Reports, various, *re* Gauges of Australian Railways, Unification of Gauges, Strategic Railways, etc.; Staff Lists; Reports of Engineer-in-Chief; Statements regarding Cost of Construction, Revenue, and Expenditure of Trans-Australian Railway.

Science and Industry. Memo. on the Organisation of Scientific Research Institutions in U.S.A., by Mr. G. Lightfoot, M.A.; Report of the Executive Council; Recent Developments in the Organisation of National Industrial Research Institutions; Bulletins, Nos. 1 to 6.

Shipping—Commonwealth Line of Steamships, Return of Voyages, etc.; Merchant Tonnage and the Submarine.

Social Insurance: Report by the Hon. Sir John Cockburn on the Hague Conference of 1910.

Tariff—Tariff Guide, annual from 1903; also Customs and Tariff Schedules; Reports on Tariff Investigation; Tariff Decisions; Customs Orders.

Trade and Customs—Report of Royal Commission on Meat Export Trade; Trade and Customs Returns, 1903 to 1905 (by Government Statistician of New South Wales); Report of Royal Commission on Tasmanian Customs Leakage.

Treasury—Correspondence relating to the Gold Reserve in respect to the issue of Australian Notes; Budget, annual from 1901-2; Estimates, annual, from 1901-2; also Supplementary Estimates; Treasurer's Statements and Reports of Auditor-General, annual from 1901-2; Treasury Notes issued to the various Banks of the Commonwealth; Treasury Statements of Receipts and Expenditure (issued quarterly in the *Commonwealth Gazette*); Statements and Reports regarding Maternity Allowances, Invalid and Old Age Pensions, War Pensions, Dealings and Transactions under Commonwealth Inscribed Stock Act.

Works and Railways. Digests, Nos. 1 to 26.

### 3. State Publications.—The chief publications of each State are as follows:—

#### (i.) New South Wales.—(a) *Publications by Government Statistician:—*

Statistical Register (annual); Official Year Book of New South Wales, (annual); Statesman's Year Book (annual); Vital Statistics (monthly and annual); Statistical Bulletin (monthly); Six States of Australia and New Zealand (annual) to 1905; Reports on Rural and Manufacturing Industries, and on Value of Production (annual and special); Population of New South Wales (quarterly); Comparative Legislation relating to the Industrial Classes; Friendly Societies' Experience, 1900-1908.

#### (b) *Departmental Papers:—*

Annual Reports of Officials, and Departments, Boards, Bureaux, etc., relating to—

Aborigines; Accounts; Agriculture; Art Gallery; Auditor-General; Botanical Gardens; Brickworks; Budget; Disaster Relief; Education; Estimates; Explosives; Factories and Shops (Minimum Wage, Early Closing,

Shearers' Accommodation); Finance; Fisheries; Forestry; Friendly Societies; Health; Immigration; Industrial Schools; Insane; Labour, and Labour Commission; Lands—Crown Lands, and Western Land Board; Leprosy; Local Government; Medical Officer; Microbiology; Miners' Accident Relief; Mines; Museum, and Technological Museum; National Park; Parliamentary Reports; Pharmacy; Police; Printing Office; Prisons; Public Library; Public Service; Public Works; Railways; Reformatories; Registrar-General; Savings Bank; State Children's Relief; State Clothing Factory; State Debt Commission; State Industrial Undertakings; Trade Unions; University; Water Conservation and Irrigation.

Reports of Parliamentary Committees, Commissions, Conferences, etc.; Agricultural Gazette (monthly); Industrial Gazette (monthly); Trade Reports; Records of the Geological Survey; Return of Gold Yields (quarterly); Statement of Assets and Liabilities of Public Companies (quarterly), and of Banks (quarterly); Railways and Tramways Report (quarterly); Observatory Reports and Bulletins; Report on Special War Expenditure; Synopsis of Voting at Elections.

(c) *Reports and Statements of Local Bodies as follows:—*

Fire Commissioners; Harbour Trusts; Hospitals; Municipalities; University; Water Supply and Sewerage Boards.

ii.) *Victoria.*—(a) *Publications by Government Statist:—*

Statistical Register (annual); Victorian Year Book (annual); Vital Statistics (annual and quarterly); Statistical Abstracts (quarterly); Returns of Oversea Imports and Exports (monthly); Reports on Rural and Manufacturing Industries, and on Value of Production (annual and special); Report on Friendly Societies (annual); Report on Trade Unions (annual).

(b) *Departmental Papers:—*

Annual Reports of Officials, and Departments, Boards, Bureaux, etc., relating to—Aborigines; Accident Insurance; Accounts; Agriculture, and Agricultural Colleges; Astronomer; Auditor-General; Budget; Charitable Institutions; Coal Miners' Accident Relief; Coal Mines; Council of Judges; Country Roads; Education; Estimates; Explosives; Factories (Work-rooms, Shops, etc.); Finance; Forests; Friendly Societies; Health; Indeterminate Sentences; Inebriates' Institutions; Insane; Lands and Survey; Lands Purchase and Management; Licenses Reduction; Marine; Mines; Neglected Children and Reformatory Schools; Observatory; Parliamentary Reports; Penal Establishments, Gaols, and Reformatory Prisons; Public Library, Museums, and National Gallery; Public Service; Railways (Railway Construction, Parliamentary Standing Committee, etc.); Rivers and Water Supply; Savings Banks; University.

Reports of Parliamentary Committees, Commissions, Conferences, etc.; Agricultural Journal (monthly); Trade Reports; Memoirs and Bulletins of the Geological Survey; Return of Yield of Goldfields (quarterly); Returns under Acts relating to Banks and Currency, Public Companies, Electric Light and Power, etc.; Bank Liabilities and Assets (quarterly); Determinations of Wages Boards and Courts of Industrial Appeal.

(c) *Reports and Statements of Local Bodies as follows:—*

Fire Brigades Boards; Harbour Trusts; Hospitals and Benevolent Asylums; Municipalities; University; Waterworks Trusts; Works (Melbourne and Metropolitan Board).

(iii.) **Queensland.**—(a) *Publications by Government Statistician* :—

Statistical Register (annual); Official Year Book, 1901; A.B.C. of Queensland Statistics (annual); Vital Statistics (annual and monthly); Population of Queensland, 1916; Reports on Rural and Manufacturing Industries (annual and special).

(b) *Departmental Papers* :—

Annual Reports of Officials, and Departments, Boards, Bureaux, etc., relating to—Aborigines; Accounts; Advertising; Agent-General; Agricultural Bank; Agriculture and Stock; Analyst; Art Gallery; Auditor-General; Budget; Education; Estimates; Explosives; Finance; Forests; Friendly Societies; Government Relief; Harbours and Rivers; Health; Hospitals for Insane; Immigration; Industrial Undertakings; Insolvency; Intestate Estates; Labour (Factories, Shops, etc.); Lands; Life Insurance and Annuities; Machinery and Scaffolding; Marine; Medicine (Tropical Medicine, Inspection of Schools, etc.); Mines; Orphanages; Parliamentary Papers; Police; Prisons; Public Library; Public Service; Public Works; Railways; Savings Bank; State Children's Department; Sugar Experimental Stations; and Central Sugar Mills; Taxation; Thursday Island; University; Water Supply; Workers' Dwellings.

Reports of Parliamentary Committees, Commissions, Conferences, etc.; Blue Book (annual); Agricultural Journal (monthly); Mining Journal (annual); Mining Reports (monthly); Reports of the Geological Survey; Reports on Sugar Industry; Industrial Gazette (monthly); Determinations of Wages Boards.

(c) *Reports and Statements of Local Bodies as follows* :—

Harbour Boards; Hospitals, Sanatoria, Asylums, etc.; Municipalities; University; Water Supply and Sewerage Boards.

(iv.) **South Australia.**—(a) *Publications by the Under-Secretary and Government Statist* :—

Statistical Register (annual); Official Year Book, 1912 and 1913; Blue Book (annual); Statesman's Pocket Year Book (annual); Returns of Births and Deaths (monthly); Statistical Summary, 1836 to 1910; Reports on Rural and Manufacturing Industries (annual and special).

(b) *Departmental Papers* :—

Annual Reports of Officials, and Departments, Boards, Bureaux, etc., relating to—Accounts; Advances to Settlers; Agent-General; Agriculture; Astronomer; Audit-Commissioner; Budget; Destitution; Education; Estimates; Factories; Fisheries, and Oyster Fisheries; Gaols and Prisons; Hospitals for the Insane; Lands and Survey; Marine; Mines; National Park; Observatory; Parliamentary Papers; Police; Produce Department; Public Library; Museum and Art Gallery; Public Service; Public Works; Railways; Registrar-General; Savings Bank; State Children; Stock; Trade Unions; Woods and Forests.

Reports of Parliamentary Committees, Commissions, Conferences, etc.; Agricultural Journal (monthly); Bulletins of Department of Agriculture, and of Chemistry; Review of Mining Operations (half-yearly); Records and Reports of Geological Survey; Reports of Railway Commissioners (quarterly); Statements of Receipts and Disbursements (quarterly); Determinations of Wages Boards.

(c) *Reports and Statements of Local Bodies as follows:—*

Fire Brigades; Health Boards; Hospitals; Municipalities; Tramways Trust; University.

(v.) **Western Australia.**—(a) *Publications by Government Statistician:—*

Statistical Register (annual); Year Book, 1900-03, 1902-4, 1905 (part); Blue Book (annual); Statistical Abstracts (quarterly, previously issued monthly to July, 1917); Population and Vital Statistics (annual and quarterly); Statistical View of Progress (annual); Reports on Rural and Manufacturing Industries, and on Trade and Shipping (annual and special).

(b) *Departmental Papers:—*

Annual Reports of Officials, and Departments, Boards, Bureaux, etc., relating to—Aborigines; Agent-General; Agricultural Bank; Agriculture; Analyst; Astronomer; Auditor-General; Budget; Charities and Industrial and Reformatory Schools; Education; Estimates; Explosives; Factories (Health, Medical, Early Closing, etc.); Finance; Fisheries; Friendly Societies (Industrial Conciliation, Arbitration, Trade Unions); Geological Survey; Harbours; Insane; Labour; Lands and Surveys, and Lands Titles; Machinery; Mines; Museum and Art Gallery; Parliamentary Papers; Police; Prisons; Public Library; Public Service; Public Works; Railways; Savings Bank; Stock; Taxation; Water Supply, Sewerage and Drainage; Woods and Forests.

Reports of Parliamentary Committees, Commissions, Conferences, etc.:—Agricultural Journal (monthly); Gold and Mineral Exports (monthly); Reports and Bulletins of the Geological Survey; Bulletins of the Department of State Medicine and Public Health; Government Savings Bank Return (monthly); Proceedings before Boards of Conciliation and Courts of Arbitration; Report on Principal Electoral Systems.

(c) *Reports and Statements of Local Bodies as follows:—*

Cemetery Boards; Fire Brigades; Harbour Trusts and Boards; Hospitals; Municipalities and Road Boards; University; Waterworks Boards.

(vi.) **Tasmania.** (a) *Publications by Government Statistician:—*

Statistical Register (annual); Statesman's Pocket Year Book, 1917; Statistical Summaries (annual); Vital Statistics and Migration (annual and monthly); Reports on Rural, etc., Production and Industries (annual and special).

(b) *Departmental Papers:—*

Annual Reports of Officials, and Departments, Boards, Bureaux, etc., relating to—Accounts; Agent-General; Agricultural Bank; Agriculture; Auditor-General; Budget; Charitable Grants; Education; Estimates; Explosives; Factories; Finance; Friendly Societies and Trade Unions; Gaols; Industrial; Health; Lands and Survey; Machinery; Mines; Museum and Botanical Gardens; Neglected Children; Parliamentary Papers; Police; Public Library; Public Service; Public Works; Railways; Savings Banks; Stock; Taxes; Titles; University.

Reports of Parliamentary Committees, Commissions, Conferences, etc.:—Agricultural Gazette (monthly), Geological Survey Bulletins; Progress of the Mineral Industry (quarterly); Wages Boards Determinations; Statement of Public Debts Sinking Fund.

(c) *Reports and Statements of Local Bodies as follows:—*

Country Libraries; Drainage Board; Fire Brigade Board; Harbour Trusts; Hospitals; Industrial Schools; Marine Boards; Municipalities; University.

### § 3. Bibliography of Recent Works on Australia.

1. *General*.—It is hoped that the accompanying list of works dealing with Australia and Australian affairs generally, while not exhaustive, may prove of some service. The list refers to works published since the year 1901, and is additional to departmental official publications.

- ACKERMANN, J. *Australia*. London, 1913.  
 BUCHANAN, A. W. *The Real Australia*. London, 1907.  
 BULLEN, FRANK T. *Advance Australia*. London, 1907.  
 CLARK, A. T. *Australian Constitutional Law*. Melbourne, 1905.  
 CLARK, VICTOR S. *The Labour Movement in Australasia*. London, 1906.  
 COLLIER, JAMES. Sir George Grey. Christchurch, 1909.  
 COLLINGRIDGE, GEORGE. *First Discovery of Australia and New Guinea*. Sydney, 1906.  
 CRAMP, K. R. *State and Federal Constitutions of Australia*. Sydney, 1913.  
 CREED, DR. J. M. *My Recollections of Australia and Elsewhere, 1842-1914*. London, 1916.  
 D'AUNET, B. *L'Aurore Australe*. Melbourne, 1905; Paris, 1907.  
 DUNCAN, N. *Australian Byways*. London, 1915.  
 FAYENC, E. *Explorers of Australia*. Melbourne, 1908.  
 FEDERAL HANDBOOK ON AUSTRALIA. Melbourne, 1914.  
 FITCHETT, REV. W. H. *The New World of the South: I. Australia in the Making; II. The Romance of Australian History*. London, 1913.  
 FOX, FRANK. *Peeps at Many Lands. Australia*. London, 1911.  
 FRASER, J. FOSTER. *Australia: The Making of a Nation*. London, 1910.  
 GAY, FLORENCE. *In Praise of Australia*. London, 1912.  
 GILLIES, WM. *Stories in English History for Young Australians*. Melbourne, 1905.  
 GLYNN, HON. P. McM. *The Federal Constitution—The Proposed Amendments*. Adelaide, 1915.  
 GREGORY, J. W. *The Dead Heart of Australia*. London, 1906. *Australia and New Zealand (in Stanford's Compendium of Geography and Travel)*. London, 1907. *Australia*. Cambridge, 1916.  
 GREY, J. G. *Australasia, Old and New*. London, 1901.  
 GULLETT, H. S. *The Opportunity in Australia*. London, 1914.  
 HARRIS, WALTER K. *Out back in Australia*. Second Edition, London, 1913; Berlin, 1914.  
 HENDERSON, G. C. Sir George Grey. London, 1907.  
 HOWITT, A. W. *The Native Tribes of South East Australia*. London, 1904.  
 JACOMB, C. E. *God's Own Country*. London, 1914.  
 JENKS, E. *History of the Australian Colonies*. 3rd Edition, London, 1912.  
 JOHNS, FRED. *Australasia's Prominent People*. London, 1914.  
 JOHNS, FRED. *A Journalist's Jottings*. Adelaide, 1917.  
 JOHNSTON, SIR H. *Pioneers in Australasia*. London, 1913.  
 JOSE, A. W. *History of Australasia*. Sydney, 1909 and 1911.  
 KEENAN, J. J. *Commonwealth of Australia Inaugural Celebrations*. Sydney, 1907.  
 KNOWLES, G. S. *The Acts of the Parliament of the Commonwealth of Australia from 1901 to 1911, and in force on January 1, 1912*. London, 1914.  
 LEE, IDA (Mrs. C. B. Marriott.) *The Coming of the British to Australia, 1788-1829*. London, 1906.  
 LONG, C. R. *Stories of Australian Exploration*. Melbourne. Editions 1903, 1906, and 1913.  
 MAIDEN, J. H. Sir Joseph Banks, the Father of Australia. Sydney, 1909.  
 MANES, ALFRED. *Der Soziale Erdteil: Studienfahrt eines National-Ökonomen durch Australasien*. Berlin, E. S. Mittler und Sohn.  
 MANUAL OF EMERGENCY LEGISLATION. Commonwealth of Australia. Melbourne, 1916.  
 MASSON, E. R. *An Untamed Territory—The Northern Territory of Australia*. London, 1915.  
 METIN, A. *Le Socialisme sans doctrines: la question ouvrière et la question agraire en Australie et Nouvelle Zélande*. Paris, 1901.  
 MILLS, R. C. *The Colonization of Australia (1829-42)*. London, 1915.  
 MOORE, W. H. *The Constitution of the Commonwealth of Australia*. London, 1902. Second Edition. Melbourne, 1910.  
 MORGAN, B. H. *The Trade and Industry of Australia*. London, 1909.  
 MURDOCH, WALTER. *The Australian Citizen*. Melbourne, 1912. *The Making of Australia*. Melbourne, 1917.  
 MURPHY, H. M. *Labour and Wages in Australia*. Melbourne, 1917.  
 NELSON, W. *Foster Fraser's Fallacies*. Sydney, 1910.  
 PHILLIPS, MARION. *A Colonial Autocracy*. London, 1909.  
 PRATT, E. A. *The State Railway Muddle in Australia*. London, 1912.  
 PULSFORD, E. *Commerce and the Empire*. London, 1903.

- QUICK, HON. SIR J., AND GARRAN, R. R. *The Annotated Constitution of the Australian Commonwealth.* Sydney, 1901.
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- RANKIN, M. T. *Arbitration and Conciliation in Australia.* London, 1916.
- REEVES, W. P. *State Experiments in Australia and New Zealand.* 2 vols. London, 1902.
- ROGERS, J. D. *Australia* (in Lucas's *Historical Geography of the British Colonies*). Oxford, 1907.
- ROWLAND, P. F. *The New Nation.* London, 1903.
- RUSDEN, G. W. *History of Australia.* 3 vols. Melbourne, 1908.
- SAPPER, KARL. *Australien und Ozeanien.* Leipzig, 1909.
- SARGENT, A. J. *Australasia: Eight Lectures* (Great Britain—Colonial Office). London, 1913.
- SCHACHNER, R. *Australien in Politik, Wirtschaft, Kultur.* Bd. I. Jena, 1909; do. Bd. II. Jena, 1911.
- SCOTT, ERNEST. *Terre Napoléon: A History of French Explorations and Projects in Australia.* London, 1910. *La Pérouse.* Sydney, 1912. *Life of Matthew Flinders, R.N.* Sydney, 1914. *A Short History of Australia.* Oxford, 1916.
- SCOTT, R. F. *The Voyage of the Discovery.* 2 vols. London, 1905.
- SCOTTISH AGRICULTURAL COMMISSION'S REPORT. *Australia: Its Land, Conditions, and Prospects.* Edinburgh, 1911.
- SEARCY, A. *In Australian Tropics.* London, 1907. *By Flood and Field.* Melbourne, 1911.
- SPENCE, W. G. *Australia's Awakening.* Sydney, 1909.
- SPENCER, W. B., AND GILLEN, F. J. *The Northern Tribes of Central Australia.* London, 1904. *Across Australia.* 2 vols. London, 1912. *The Native Tribes of the Northern Territory of Australia.* London, 1914.
- SPURR, REV. F. C. *Five Years Under the Southern Cross.* London, 1915.
- ST. LEDGER, A. *Australian Socialism.* London, 1909.
- TAYLOR, T. G. *Australia. Physiographic and Economic.* Oxford, 1911. *A Geography of Australia.* Oxford, 1914.
- THOMAS, N. W. *Natives of Australia.* London, 1906. *Kinship Organisations and Group Marriages in Australia.* Cambridge, 1906.
- THOMSON, R. P. *A National History of Australia and New Zealand and the Adjacent Islands.* London, 1917.
- TILBEY, A. W. *Australasia.* London, 1912.
- TURNER, H. G. *First Decade of the Australian Commonwealth.* London, 1911.
- VOSSON, L. *L'Australie Nouvelle et son avenir.* Paris, 1902.
- WALTHAM, E. *Life and Labour in Australia.* London, 1909.
- WATSON, DR. F. *Historical Records of Australia*, vol. 1, series I-XI.
- WILKINSON, H. L. *The History of the Trust Movement in Australia.* Melbourne, 1914. *State Regulation of Prices in Australia.* Melbourne, 1917.
- WISE, HON. B. R. *Commonwealth of Australia.* London, 1909. 2nd Edition, London, 1913.
- The Making of the Australian Commonwealth.* London, 1913.
- YEAR BOOK OF AUSTRALIA. Annual. Sydney.

2. *Works on Special Subjects.*—In addition to the works set out in the above bibliography dealing generally with the historical, industrial and personal aspects of the Australian people, there are a number of recent works upon special subjects, of which the following are amongst the more important:—

- BAKER, RICHARD T., AND SMITH, H. G. *A Research on the Eucalypts.* Sydney, 1902. *A Research on the Pines of Australia.* Sydney, 1910.
- BAKER, RICHARD T. *Cabinet Timbers of Australia.* Sydney, 1913. *Australian Flora in Applied Art.* Sydney, 1915.
- BURNELL, F. S. *Australia versus Germany. The Taking of German New Guinea.* London, 1915.
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- GUILFOYLE, W. R. *Australian Plants.* Melbourne, 1910.
- HALL, ROBERT, AND GILLIES, W. *Nature Studies in Australia.* Melbourne, 1903. Revised Edition. Melbourne, 1910.
- HALL, ROBERT. *Useful Birds of Southern Australia.* Melbourne, 1907.
- HAWKESWORTH, A. *Australasian Sheep and Wool.* 3rd Edition. Sydney, 1911.
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## SECTION II.

### DISCOVERY, COLONISATION, AND FEDERATION OF AUSTRALIA.

#### § 1. Early Knowledge of Australia.

A brief, though fairly comprehensive, account of the discovery and early knowledge of Australia was given in Year Book No. 1 (pp. 44 to 51). This account appeared in a condensed form in Year Books Nos. 2, 3, and 4. Bibliographical references to the subject were also given in Year Book No. 1 (p. 49). Exigencies of space prevent the inclusion of any further reference to this subject in the present issue.

#### § 2. The Taking Possession of Australia.

Reference was made to the more important facts relating to the taking possession and annexation of Australia in each of the first four issues of this book: see preferably Year Book No. 4 (pp. 15 and 16). In so far as the annexation of the eastern parts is concerned, a full historical account of the period may be found in the "Historical Records of New South Wales," Vol. I., parts 1 and 2. For an account of the annexation of Western Australia, reference may be made to the West Australian Year Book 1905, Part 1.

#### § 3. The Creation of the Several Colonies.

1. **Introduction.**—A historical summary of the facts relating to the creation of the several colonies, the separation of Victoria and Queensland, and the changes in the boundaries of certain of the colonies has appeared in previous issues of this book: see Year Book No. 4 (pp. 16 to 23). The main facts in this connection may be traced by reference to the maps in preceding issues (see Year Book, No. 4, pp. 17 and 18).

2. **No further Creation of Colonies after 1859.**—Since the separation of Queensland in 1859 no other creation of colonies has taken place in Australia, though the boundaries of New South Wales, Queensland, and South Australia were altered later, and the control of the Northern Territory was transferred from South Australia to the Commonwealth in 1911. In 1914, the boundary between Victoria and South Australia, which had been in dispute, was determined by the High Court. The dates of foundation of the Australasian colonies, and their areas at the close of 1859, were as shewn in the following table:—



**DATES OF FOUNDATION OF AUSTRALASIAN COLONIES AND AREAS AS AT  
END OF 1859.**

Colony.	Date of Annexation.	Date of Creation.	Date of First Permanent Settlement.	Area. Square Miles.
New South Wales ... ..	1770	1786	1788	1,020,412
Tasmania ... ..	1788	1825	1803	26,215
South Australia ... ..	1788	1834	1836	309,850
Victoria ... ..	1770	1851	1834	87,884
Queensland ... ..	1770	1859	1824	554,300
Western Australia ... ..	1829	1829	1829	975,920
New Zealand ... ..	1840	1841	1814	104,471 <sup>1</sup>

1. By proclamation dated 10th June, 1901, the area of the Dominion was increased by 280 square miles, making it now 104,751 square miles, by the inclusion of the Cook Group and other islands.

3. **Australasia, 1863 to 1900.**—The immense area generally known as Australasia had, by 1863, been divided into seven distinct colonies, the areas of which are shewn below. The areas of the Northern Territory and the Federal Capital Territory, which are now under the exclusive jurisdiction of the Commonwealth, are given separately.

On the 1st January, 1901, the colonies mentioned above, with the exception of New Zealand, were federated under the name of the "Commonwealth of Australia," the designation of "Colonies" being at the same time changed into that of "States." The total area of the Commonwealth is, therefore, 2,974,581 square miles; the dates of creation and the areas of the separate colonies and territories, as determined on the final adjustment of their boundaries, are shewn in the following table:—

**DATES OF CREATION AND AREAS OF THE SEVERAL COLONIES AND  
TERRITORIES.**

Colony.	Year of For- mation into Separate Colony.	Present Area in Square Miles.	Colony.	Year of For- mation into Separate Colony.	Present Area in Square Miles.
New South Wales ...	1786	309,460 <sup>1</sup>	New Zealand ...	1841	104,751
Tasmania ... ..	1825	26,215	Victoria ... ..	1851	87,884
Western Australia ...	1829	975,920	Queensland ... ..	1859	670,500
South Australia (proper)	1834	380,070	Northern Territory	1863	523,620
			Fed. Capital Ter't'y	1911	912 <sup>2</sup>
Commonwealth ... ..			2,974,581 square miles.		
Australasia ... ..			3,079,332 square miles.		

1. Exclusive of Federal Capital Territory.

2. Prior to 1911 included with New South Wales.

4. **British New Guinea or Papua.**—Under the administration of the Commonwealth, but not included in it, is British New Guinea or *Papua*, finally annexed by the British Government in 1884. This territory was for a number of years administered by the Queensland Government, but was transferred to the Commonwealth by proclamation on the 1st September, 1906, under the authority of the Papua Act (Commonwealth) of 16th November, 1905. The area of Papua is about 90,540 square miles. More extended reference to this dependency of the Commonwealth will be found in Section XXIX.

5. **Transfer of the Northern Territory to the Commonwealth.**—On the 7th December, 1907, the Commonwealth and the State of South Australia entered into an agreement for the surrender to and acceptance by the Commonwealth of the Northern Territory, subject to approval by the Parliaments of the Commonwealth and the State. This approval was given by the South Australian Parliament under the Northern Territory

## TRANSFER OF THE FEDERAL CAPITAL TERRITORY TO THE COMMONWEALTH. 15

Surrender Act 1907 (assented to on the 14th May, 1908), and by the Commonwealth Parliament under the Northern Territory Acceptance Act 1910 (assented to on the 16th November, 1910). The Territory accordingly was transferred by proclamation to the Commonwealth on the 1st January, 1911. Further information may be found in the section of this book (xxxii.) on "*The Northern Territory*."

6. **Norfolk Island.**—Although administered for many years by the Government of New South Wales, this island was, until 1st July, 1914, a separate Crown colony. On that date it was taken over by the Federal Parliament as a territory of the Commonwealth. Further reference to the island will be found in the latter part of Section XXXIV.

### § 4. Transfer of the Federal Capital Territory to the Commonwealth.

On the 18th October, 1909, the Commonwealth and the State of New South Wales entered into an agreement for the surrender to and acceptance by the Commonwealth of an area of 912 square miles as the seat of Government of the Commonwealth. In December, 1909, Acts were passed by the Commonwealth and New South Wales Parliaments, approving the agreement, and on the 5th December, 1910, a proclamation was issued vesting the Territory in the Commonwealth on and from the 1st January, 1911. Further reference to the Territory will be found in Section XXXI. of this book.

### § 5. The Exploration of Australia.

A fairly complete, though brief, account of the Exploration of Australia was given in Year Book No. 2 (pp. 20 to 39). A brief summary of the more important facts relating to the subject was given in Year Books Nos. 3 and 4. Maps shewing the progress of Australian exploration may also be found in previous issues (see No. 8, p. 35).

### § 6. The Constitutions of the States.

A brief and condensed statement of the constitutional history of the several States, shewing how their present Constitutions have been built up, may be found in Section II. of the second, third, and fourth issues of the Year Book. (See No. 4, pp. 27 to 32).

### § 7. The Federal Movement in Australia.

A summary was given in Year Book No. 1 (pp. 17 to 21) of the "Federal Movement in Australia" from its inception to its consummation; a synopsis thereof was given in Year Books Nos. 2, 3, and 4. (See No. 4, pp. 32 to 37.)

### § 8. Creation of the Commonwealth.

1. **The Act.**—The Commonwealth of Australia Constitution Act, 63 and 64 Vic., Chapter 12, namely, an Act to constitute the Commonwealth of Australia, was shewn *in extenso* in Year Book No. 1. In the Year Books Nos. 2, 3 and 4, a summary of the Act was given. As two amending Acts, namely, the Constitution Alteration (Senate Elections) Act 1906, and the Constitution Alteration (State Debts) Act 1909, have been passed, it was thought desirable to insert the Act, as amended, in full in Year Book No. 5 and subsequent issues.

#### THE COMMONWEALTH OF AUSTRALIA CONSTITUTION ACT. 63 & 64 VICT., CHAPTER 12.

*An Act to constitute the Commonwealth of Australia. [9th July, 1900.]*

**W**HEREAS the people of New South Wales, Victoria, South Australia, Queensland, and Tasmania, humbly relying on the blessing of Almighty God, have agreed to unite in one indissoluble Federal Commonwealth under the Crown of the United Kingdom of Great Britain and Ireland, and under the Constitution hereby established :

And whereas it is expedient to provide for the admission into the Commonwealth of other Australasian Colonies and possessions of the Queen :

Be it therefore enacted by the Queen's Most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows:—

1. This Act may be cited as the Commonwealth of Australia Constitution Act.
2. The provisions of this Act referring to the Queen shall extend to Her Majesty's heirs and successors in the sovereignty of the United Kingdom.
3. It shall be lawful for the Queen, with the advice of the Privy Council, to declare by proclamation that, on and after a day therein appointed, not being later than one year after the passing of this Act, the people of New South Wales, Victoria, South Australia, Queensland, and Tasmania, and also, if Her Majesty is satisfied that the people of Western Australia have agreed thereto, of Western Australia, shall be united in a Federal Commonwealth under the name of the Commonwealth of Australia. But the Queen may, at any time after the proclamation, appoint a Governor-General for the Commonwealth.
4. The Commonwealth shall be established, and the Constitution of the Commonwealth shall take effect, on and after the day so appointed. But the Parliaments of the several colonies may at any time after the passing of this Act make any such laws, to come into operation on the day so appointed, as they might have made if the Constitution had taken effect at the passing of this Act.
5. This Act, and all laws made by the Parliament of the Commonwealth under the Constitution, shall be binding on the courts, judges, and people of every State and of every part of the Commonwealth, notwithstanding anything in the laws of any State; and the laws of the Commonwealth shall be in force on all British Ships, the Queen's ships of war excepted, whose first port of clearance and whose port of destination are in the Commonwealth.
6. "The Commonwealth" shall mean the Commonwealth of Australia as established under this Act.
- "The States" shall mean such of the colonies of New South Wales, New Zealand, Queensland, Tasmania, Victoria, Western Australia and South Australia, including the northern territory of South Australia, as for the time being are parts of the Commonwealth, and such colonies or territories as may be admitted into or established by the Commonwealth as States: and each of such parts of the Commonwealth shall be called "a State."
- "Original States" shall mean such States as are part of the Commonwealth at its establishment.
7. The Federal Council of Australasia Act 1885 is hereby repealed, but so as not to affect any laws passed by the Federal Council of Australasia and in force at the establishment of the Commonwealth.
- Any such law may be repealed as to any State by the Parliament of the Commonwealth, or as to any colony not being a State by the Parliament thereof.
8. After the passing of this Act the Colonial Boundaries Act 1895 shall not apply to any colony which becomes a State of the Commonwealth: but the Commonwealth shall be taken to be a self-governing colony for the purposes of that Act.
9. The Constitution of the Commonwealth shall be as follows:—

#### THE CONSTITUTION.

This Constitution is divided as follows:—

##### Chapter I.—The Parliament:—

Part I.—General.

Part II.—The Senate.

Part III.—The House of Representatives.

Part IV.—Both Houses of Parliament.

Part V.—Powers of the Parliament.

##### Chapter II.—The Executive Government.

##### Chapter III.—The Judicature.

##### Chapter IV.—Finance and Trade.

##### Chapter V.—The States.

##### Chapter VI.—New States.

##### Chapter VII.—Miscellaneous.

##### Chapter VIII.—Alteration of the Constitution.

#### The Schedule.

CHAPTER I.—THE PARLIAMENT.

PART I.—GENERAL.

1. The legislative power of the Commonwealth shall be vested in a Federal Parliament, which shall consist of the Queen, a Senate, and a House of Representatives, and which is hereinafter called "The Parliament," or "The Parliament of the Commonwealth."

2. A Governor-General appointed by the Queen shall be Her Majesty's representative in the Commonwealth, and shall have and may exercise in the Commonwealth during the Queen's pleasure, but subject to this Constitution, such powers and functions of the Queen as Her Majesty may be pleased to assign to him.

3. There shall be payable to the Queen out of the Consolidated Revenue fund of the Commonwealth, for the salary of the Governor-General, an annual sum which, until the Parliament otherwise provides, shall be ten thousand pounds.

The salary of a Governor-General shall not be altered during his continuance in office.

4. The provisions of this Constitution relating to the Governor-General extend and apply to the Governor-General, for the time being, or such person as the Queen may appoint to administer the Government of the Commonwealth: but no such person shall be entitled to receive any salary from the Commonwealth in respect of any other office during his administration of the Government of the Commonwealth.

5. The Governor-General may appoint such times for holding the sessions of the Parliament as he thinks fit, and may also from time to time, by Proclamation or otherwise, prorogue the Parliament, and may in like manner dissolve the House of Representatives.

After any general election the Parliament shall be summoned to meet not later than thirty days after the day appointed for the return of the writs.

The Parliament shall be summoned to meet not later than six months after the establishment of the Commonwealth.

6. There shall be a session of the Parliament once at least in every year, so that twelve months shall not intervene between the last sitting of the Parliament in one session and its first sitting in the next session.

PART II.—THE SENATE.

7. The Senate shall be composed of senators for each State, directly chosen by the people of the State, voting, until the Parliament otherwise provides, as one electorate.

But until the Parliament of the Commonwealth otherwise provides, the Parliament of the State of Queensland, if that State be an original State, may make laws dividing the State into divisions and determining the number of senators to be chosen for each division, and in the absence of such provision the State shall be one electorate.

Until the Parliament otherwise provides there shall be six senators for each Original State. The Parliament may make laws increasing or diminishing the number of senators for each State, but so that equal representation of the several Original States shall be maintained and that no Original State shall have less than six senators.

The senators shall be chosen for a term of six years, and the names of the senators chosen for each State shall be certified by the Governor to the Governor-General.

8. The qualification of electors of senators shall be in each State that which is prescribed by this Constitution, or by the Parliament, as the qualification for electors of members of the House of Representatives; but in the choosing of senators each elector shall vote only once.

9. The Parliament of the Commonwealth may make laws prescribing the method of choosing senators, but so that the method shall be uniform for all the States. Subject to any such law, the Parliament of each State may make laws prescribing the method of choosing the senators for that State.

The Parliament of a State may make laws for determining the times and places of elections of senators for that State.

10. Until the Parliament otherwise provides, but subject to this Constitution, the laws in force in each State, for the time being, relating to elections for the more numerous House of the Parliament of the State shall, as nearly as practicable, apply to elections of senators for the State.

11. The Senate may proceed to the despatch of business, notwithstanding the failure of any State to provide for its representation in the Senate.

12. The Governor of any State may cause writs to be issued for elections of senators for the State. In case of the dissolution of the Senate the writs shall be issued within ten days from the proclamation of such dissolution.

13. As soon as may be after the Senate first meets, and after each first meeting of the Senate following a dissolution thereof, the Senate shall divide the senators chosen for each State into two classes, as nearly equal in number as practicable; and the places of the senators of the first class shall become vacant at the expiration of [the third year] *three years*,<sup>1</sup> and the places of those of the second class at the expiration of [the sixth year] *six years*<sup>1</sup> from the beginning of their term of service; and afterwards the places of senators shall become vacant at the expiration of six years from the beginning of their term of service.<sup>3</sup>

The election to fill vacant places shall be made [in the year at the expiration of which] *within one year before*<sup>1</sup> the places are to become vacant.

For the purpose of this section the term of service of a senator shall be taken to begin on the first day of [January] *July*<sup>1</sup> following the day of his election, except in the cases of the first election and of the election next after any dissolution of the Senate, when it shall be taken to begin on the first day of [January] *July*<sup>1</sup> preceding the day of his election.<sup>2,4</sup>

14. Whenever the number of senators for a State is increased or diminished, the Parliament of the Commonwealth may make such provision for the vacating of the places of senators for the State as it deems necessary to maintain regularity in the rotation.

1. As amended by section 2 of the Constitution Alteration (Senate Elections) 1906. The words in square brackets have been repealed; amendments are shown in italics.

2. Under sections 3 and 4, the Constitution Alteration (Senate Elections) 1906, it was also provided that—

(a) The terms of service of the senators whose places would, but for this Act, become vacant at the expiration of the year One thousand nine hundred and nine are extended until the thirtieth day of June One thousand nine hundred and ten.

(b) The terms of service of the senators whose places would, but for this Act, become vacant at the expiration of the year One thousand nine hundred and twelve are extended until the thirtieth day of June One thousand nine hundred and thirteen.

(c) This Act shall not be taken to alter the time of beginning of the term of service of any senator elected in the year One thousand nine hundred and six.

3. A bill was passed by the Commonwealth Parliament on the 2nd September, 1915, for the submission to the electors of a proposed law to alter section 13 by inserting after *three years* the words *and two months*, and after *six years* where mentioned the words *and four months*.

4. It was also proposed by the bill alluded to above to alter the foregoing paragraph so as to read thus:—For the purposes of this section the term of service of the senators elected in the year One thousand nine hundred and fourteen shall be taken to have begun on the first day of October, One thousand nine hundred and fourteen, and the term of service of a senator elected to fill a vacancy thereafter occurring in rotation shall be taken to begin on the day on which the place he is to fill becomes vacant, and the term of service of senators elected at an election next after a dissolution of the Senate shall be taken to begin on the day of the first meeting of the House of Representatives after dissolution. A writ was issued for a referendum (to be taken on the 11th December, 1915, at the same time as referendums for the alteration of the legislative powers of the Commonwealth), but the writs were withdrawn under authority of Act 51 of 1915. See also note to section 51.

15. If the place of a senator becomes vacant before the expiration of his term of service, the Houses of Parliament of the State for which he was chosen shall, sitting and voting together, choose a person to hold the place until the expiration of the term, or until the election of a successor as hereinafter provided, whichever first happens. But if the Houses of Parliament of the State are not in session at the time when the vacancy is notified, the Governor of the State, with the advice of the Executive Council thereof, may appoint a person to hold the place until the expiration of fourteen days after the beginning of the next session of the Parliament of the State, or until the election of a successor, whichever first happens.

At the next general election of members of the House of Representatives, or at the next election of senators for the State, whichever first happens, a successor shall, if the term has not then expired, be chosen to hold the place from the date of his election until the expiration of the term.

The name of any senator so chosen or appointed shall be certified by the Governor of the State to the Governor-General.

16. The qualifications of a senator shall be the same as those of a member of the House of Representatives.

17. The Senate shall, before proceeding to the despatch of any other business, choose a Senator to be the President of the senate; and as often as the office of President becomes vacant the Senate shall again choose a senator to be the President.

The President shall cease to hold his office if he ceases to be a senator. He may be removed from office by a vote of the Senate, or he may resign his office or his seat by writing addressed to the Governor-General.

18. Before or during any absence of the President, the Senate may choose a senator to perform his duties in his absence.

19. A senator may, by writing addressed to the President, or to the Governor-General if there is no President or if the President is absent from the Commonwealth, resign his place, which thereupon shall become vacant.

20. The place of a senator shall become vacant if for two consecutive months of any session of the Parliament he, without the permission of the Senate, fails to attend the Senate.

21. Whenever a vacancy happens in the Senate, the President, or if there is no President or if the President is absent from the Commonwealth, the Governor-General shall notify the same to the Governor of the State in the representation of which the vacancy has happened.

22. Until the Parliament otherwise provides, the presence of at least one-third of the whole number of the senators shall be necessary to constitute a meeting of the Senate for the exercise of its powers.

23. Questions arising in the Senate shall be determined by a majority of votes, and each senator shall have one vote. The President shall in all cases be entitled to a vote; and when the votes are equal the question shall pass in the negative.

### PART III.—THE HOUSE OF REPRESENTATIVES.

24. The House of Representatives shall be composed of members directly chosen by the people of the Commonwealth, and the number of such members shall be, as nearly as practicable, twice the number of the senators.

The number of members chosen in the several States shall be in proportion to the respective numbers of their people, and shall, until the Parliament otherwise provides, be determined, whenever necessary, in the following manner :—

- (i.) A quota shall be ascertained by dividing the number of the people of the Commonwealth, as shewn by the latest statistics of the Commonwealth, by twice the number of the senators:
- (ii.) The number of members to be chosen in each State shall be determined by dividing the number of the people of the State, as shewn by the latest statistics of the Commonwealth, by the quota; and if on such division there is a remainder greater than one-half of the quota, one more member shall be chosen in the State.

But notwithstanding anything in this section, five members at least shall be chosen in each Original State.

25. For the purposes of the last section, if by the law of any State all persons of any race are disqualified from voting at elections for the more numerous House of the Parliament of the State, then, in reckoning the number of the people of the State or of the Commonwealth, persons of that race resident in that State shall not be counted.

26. Notwithstanding anything in section twenty-four, the number of members to be chosen in each State at the first election shall be as follows :—

New South Wales	... 23	South Australia...	... 6
Victoria	... 20	Tasmania	... 5
Queensland	... 8		

Provided that if Western Australia is an Original State, the number shall be as follows :—

New South Wales	... 26	South Australia	... 7
Victoria	... 23	Western Australia	... 5
Queensland	... 9	Tasmania	... 5

27. Subject to this Constitution the Parliament may make laws for increasing or diminishing the number of the members of the House of Representatives.

28. Every House of Representatives shall continue for three years from the first meeting of the House, and no longer, but may be sooner dissolved by the Governor-General.

29. Until the Parliament of the Commonwealth otherwise provides, the Parliament of any State may make laws for determining the divisions in each State for which members of the House of Representatives may be chosen, and the number of members to be chosen for each division. A division shall not be formed out of parts of different States.

In the absence of other provision, each State shall be one electorate.

30. Until the Parliament otherwise provides, the qualification of electors of members of the House of Representatives shall be in each State that which is prescribed by the law of the State as the qualification of electors of the more numerous House of Parliament of the State; but in the choosing of members each elector shall vote only once.<sup>1</sup>

31. Until the Parliament otherwise provides, but subject to this Constitution, the laws in force in each State for the time being relating to elections for the more numerous House of the Parliament of the State shall, as nearly as practicable, apply to elections in the State of members of the House of Representatives.

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1. The franchise qualification was determined by the Commonwealth Franchise Act 1902.

32. The Governor-General in Council may cause writs to be issued for general elections of members of the House of Representatives.

After the first general election, the writs shall be issued within ten days from the expiry of a House of Representatives or from the proclamation of a dissolution thereof.

33. Whenever a vacancy happens in the House of Representatives, the Speaker shall issue his writ for the election of a new member, or if there is no Speaker, or if he is absent from the Commonwealth, the Governor-General in Council may issue the writ.

34. Until the Parliament otherwise provides, the qualifications of a member of the House of Representatives shall be as follows :—

- (i.) He must be of the full age of twenty-one years, and must be an elector entitled to vote at the election of members of the House of Representatives, or a person qualified to become such elector, and must have been for three years at the least a resident within the limits of the Commonwealth as existing at the time when he is chosen :
- (ii.) He must be a subject of the Queen, either natural-born or for at least five years naturalised under a law of the United Kingdom, or of a Colony which has become or becomes a State, or of the Commonwealth, or of a State.

35. The House of Representatives shall, before proceeding to the despatch of any other business, choose a member to be the Speaker of the House, and as often as the office of Speaker becomes vacant the House shall again choose a member to be the Speaker.

The Speaker shall cease to hold his office if he ceases to be a member. He may be removed from office by a vote of the House, or he may resign his office or his seat by writing addressed to the Governor-General:

36. Before or during any absence of the Speaker, the House of Representatives may choose a member to perform his duties in his absence.

37. A member may by writing addressed to the Speaker, or to the Governor-General if there is no Speaker or if the Speaker is absent from the Commonwealth, resign his place, which thereupon shall become vacant.

38. The place of a member shall become vacant if for two consecutive months of any session of the Parliament he, without the permission of the House, fails to attend the House.

39. Until the Parliament otherwise provides, the presence of at least one-third of the whole number of the members of the House of Representatives shall be necessary to constitute a meeting of the House for the exercise of its powers.

40. Questions arising in the House of Representatives shall be determined by a majority of votes other than that of the Speaker. The Speaker shall not vote unless the numbers are equal, and then he shall have a casting vote.

#### PART IV.—BOTH HOUSES OF THE PARLIAMENT.

41. No adult person who has or acquires a right to vote at elections for the more numerous House of the Parliament of a State shall, while the right continues, be prevented by any law of the Commonwealth from voting at elections for either House of the Parliament of the Commonwealth.

42. Every senator and every member of the House of Representatives shall before taking his seat make and subscribe before the Governor-General, or some person authorised by him, an oath or affirmation of allegiance in the form set forth in the schedule to this Constitution.

43. A member of either House of the Parliament shall be incapable of being chosen or of sitting as a member of the other House.



## 44. Any person who—

- (i.) Is under any acknowledgment of allegiance, obedience, or adherence to a foreign power, or is a subject or a citizen or entitled to the rights or privileges of a subject or a citizen of a foreign power : or
- (ii.) Is attainted of treason, or has been convicted and is under sentence, or subject to be sentenced, for any offence punishable under the law of the Commonwealth or of the State by imprisonment for one year or longer : or
- (iii.) Is an undischarged bankrupt or insolvent : or
- (iv.) Holds any office of profit under the Crown, or any pension payable during the pleasure of the Crown out of any of the revenues of the Commonwealth : or
- (v.) Has any direct or indirect pecuniary interest in any agreement with the Public Service of the Commonwealth otherwise than as a member and in common with the other members of an incorporated company consisting of more than twenty-five persons :

shall be incapable of being chosen or of sitting as a senator or a member of the House of Representatives.

But sub-section iv. does not apply to the office of any of the Queen's Ministers of State for the Commonwealth, or of any of the Queen's Ministers for a State, or to the receipt of pay, half-pay, or a pension by any person as an officer or member of the Queen's navy or army, or to the receipt of pay as an officer or member of the naval or military forces of the Commonwealth by any person whose services are not wholly employed by the Commonwealth.

## 45. If a senator or member of the House of Representatives—

- (i.) Becomes subject to any of the disabilities mentioned in the last preceding section : or
- (ii.) Takes the benefit, whether by assignment, composition, or otherwise, of any law relating to bankrupt or insolvent debtors : or
- (iii.) Directly or indirectly takes or agrees to take any fee or honorarium for services rendered to the Commonwealth, or for services rendered in the Parliament to any person or State :

his place shall thereupon become vacant.

46. Until the Parliament otherwise provides, any person declared by this Constitution to be incapable of sitting as a senator or as a member of the House of Representatives shall, for every day on which he so sits, be liable to pay the sum of one hundred pounds to any person who sues for it in any court of competent jurisdiction.

47. Until the Parliament otherwise provides, any question respecting the qualification of a senator or of a member of the House of Representatives, or respecting a vacancy in either House of the Parliament, and any question of a disputed election to either House, shall be determined by the House in which the question arises.

48. Until the Parliament otherwise provides, each senator and each member of the House of Representatives shall receive an allowance of four hundred pounds a year to be reckoned from the day on which he takes his seat.<sup>1</sup>

49. The powers, privileges, and immunities of the Senate and of the House of Representatives, and of the members and the committee of each House, shall be such as are declared by the Parliament, and until declared shall be those of the Commons House of Parliament of the United Kingdom, and of its members and committees, at the establishment of the Commonwealth.

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1. By the Parliamentary Allowances Act 1907, assented to on the 28th August, the amount of the allowance was increased to £600 a year.

50. Each House of the Parliament may make rules and orders with respect to—

- (i.) The mode in which its powers, privileges, and immunities may be exercised and upheld;
- (ii.) The order and conduct of its business and proceedings either separately or jointly with the other House.

PART V.—POWERS OF THE PARLIAMENT.<sup>1</sup>

51. The Parliament shall, subject to this Constitution, have power to make laws for the peace, order, and good government of the Commonwealth with respect to—

- (i.) Trade and commerce with other countries, and among the States :<sup>1, 2</sup>
- (ii.) Taxation ; but so as not to discriminate between States or parts of States :
- (iii.) Bounties on the production or export of goods, but so that such bounties shall be uniform throughout the Commonwealth :
- (iv.) Borrowing money on the public credit of the Commonwealth :
- (v.) Postal, telegraphic, telephonic, and other like services :

1. Two proposed laws for the alteration of the Constitution were submitted to the people for acceptance or rejection on the 26th April, 1911. They were (A) The Constitution Alteration (Legislative Powers) 1910, and (B) the Constitution Alteration (Monopolies) 1910.

(A) *Constitution Alteration (Legislative Powers) 1910.* The object of this proposed law was to extend the powers of the Commonwealth Government (under section 51 of the Constitution) in four directions, viz.—(a) Trade and Commerce, (b) Corporations, (c) Industrial matters, and (d) Trusts and monopolies.

(a) *Trade and Commerce.* In Section 51, para. (i.) of the Constitution, it was proposed to omit the words "with other countries, and among the States," so as to give the Commonwealth Parliament power to legislate with respect to trade and commerce, without limitation.

(b) *Corporations.* It was proposed to omit the words (para. xx.) "Foreign corporations, and trading or financial corporations formed within the limits of the Commonwealth," and to insert in lieu thereof the words—"Corporations including (a) the creation, dissolution, regulation, and control of corporations; (b) corporations formed under the law of a State (except any corporation formed solely for religious, charitable, scientific or artistic purposes, and not for the acquisition of gain by the corporation or its members), including their dissolution, regulation, and control; and (c) foreign corporations, including their regulation and control."

(c) *Industrial Matters.* In para. xxxv. it was proposed to omit the words "Conciliation and arbitration for the prevention and settlement of industrial disputes extending beyond the limits of any one State," and to insert in lieu thereof the words "Labour and employment, including (a) the wages and conditions of labour and employment in any trade, industry, or calling; and (b) the prevention and settlement of industrial disputes, including disputes in relation to employment on or about railways, the property of any State."

(d) *Trusts and Monopolies.* It was proposed to amend Section 51 of the Constitution by adding at the end thereof the following paragraph:—"(xl.) Combinations and monopolies in relation to the production, manufacture, or supply of goods or services."

(B) *Constitution Alteration (Monopolies) 1910.* The object of this proposed law was to alter the Constitution by inserting, after Section 51 thereof, the following section:—"51A. When each House of Parliament, in the same session, has by resolution declared that the industry or business of producing, manufacturing, or supplying goods, or of supplying any specified services, is the subject of any monopoly, the Parliament shall have power to make laws for carrying on the industry or business by or under the control of the Commonwealth, and acquiring for that purpose on just terms any property used in connection with the industry or business."

Neither of the proposed laws was approved by the people.

On the 31st May, 1913, the date of the Parliamentary elections, the same proposed alterations were again submitted to the people as five distinct laws, with an additional one whereby the conditions of employment and the settlement of disputes relating thereto in the several State railway services might be brought within the jurisdiction of the Commonwealth. All six proposed laws were negatived by the people.—See section XXV. § 2.

2. On the 15th July, 1915, the Commonwealth Parliament passed a bill for the submission to the electors of proposed laws to amend the Constitution in regard to the legislative powers of the Commonwealth Parliament. The proposed amendments differed somewhat from those submitted to the electors in the years 1911 and 1913. Thus in regard to (A) (b) *Corporations* (see 1 above) it was proposed to specifically exclude municipal and governmental corporations. (A) (c) was modified to read thus after "to insert in lieu (in their stead) the words"—Including (A) Labour, (b) Employment and unemployment, (c) The terms and conditions of labour and employment in any trade, industry, occupation, or calling, (d) The rights and obligations of employers and employees, (e) Strikes and lockouts, (f) The maintenance of industrial peace, (g) The settlement of industrial disputes. With regard to railway disputes it was proposed to insert after paragraph (xxxv.) and section 51 the following paragraph:—"(xxxv. A.) Conciliation and arbitration for the prevention and settlement of industrial disputes in relation to employment in the railway service of a State. (A) (d) was modified to read (xl.) Trusts, combinations, monopolies, and arrangements in relation to (a) the production, manufacture, or supply of goods, or the supply of services, or (b) the ownership of the means of production, manufacture, or supply of goods, or supply of services. (B) (see 1 above) was modified as follows:—After "has by resolution" the words "passed by an absolute majority of its members" were added, and an additional subsection was inserted to the effect that the section was not to apply to any industry or business conducted or carried on by the Government of a State, or any public authority constituted under a State. Writs were issued for referendums to be held on the 11th December, 1915, but they were withdrawn under Act 51 of 1915.

- (vi.) The naval and military defence of the Commonwealth and of the several States, and the control of the forces to execute and maintain the laws of the Commonwealth :
- (vii.) Lighthouses, lightships, beacons and buoys :
- (viii.) Astronomical and meteorological observations :
- (ix.) Quarantine :
- (x.) Fisheries in Australian waters beyond territorial limits :
- (xi.) Census and statistics :
- (xii.) Currency, coinage, and legal tender :
- (xiii.) Banking, other than State banking ; also State banking extending beyond the limits of the State concerned, the incorporation of banks, and the issue of paper money :
- (xiv.) Insurance, other than State insurance ; also State insurance extending beyond the limits of the State concerned :
- (xv.) Weights and measures :
- (xvi.) Bills of exchange and promissory notes :
- (xvii.) Bankruptcy and insolvency :
- (xviii.) Copyrights, patents of inventions and designs, and trade marks :
- (xix.) Naturalisation and aliens :
- (xx.) Foreign corporations, and trading or financial corporations formed within the limits of the Commonwealth :<sup>1</sup>
- (xxi.) Marriage :
- (xxii.) Divorce and matrimonial causes ; and in relation thereto, parental rights, and the custody and guardianship of infants :
- (xxiii.) Invalid and old-age pensions :
- (xxiv.) The service and execution throughout the Commonwealth of the civil and criminal process and the judgments of the Courts of the States :
- xxv.) The recognition throughout the Commonwealth of the laws, the public Acts and records, and the judicial proceedings of the States :
- (xxvi.) The people of any race, other than the aboriginal race in any State, for whom it is deemed necessary to make special laws :
- (xxvii.) Immigration and emigration :
- (xxviii.) The influx of criminals :
- (xxix.) External affairs :
- (xxx.) The relations of the Commonwealth with the islands of the Pacific :
- (xxxi.) The acquisition of property on just terms from any State or person for any purpose in respect of which the Parliament has power to make laws :
- (xxxii.) The control of railways with respect to transport for the naval and military purposes of the Commonwealth :
- (xxxiii.) The acquisition, with the consent of a State, of any railways of the State on terms arranged between the Commonwealth and the State :
- (xxxiv.) Railway construction and extension in any State with the consent of that State :
- (xxxv.) Conciliation and arbitration for the prevention and settlement of industrial disputes extending beyond the limits of any one State :<sup>1</sup>
- (xxxvi.) Matters in respect of which this Constitution makes provision until the Parliament otherwise provides :
- (xxxvii.) Matters referred to the Parliament of the Commonwealth by the Parliament or Parliaments of any State or States, but so that the law shall extend only to States by whose Parliaments the matter is referred, or which afterwards adopt the law :
- (xxxviii.) The exercise within the Commonwealth, at the request or with the concurrence of the Parliaments of all the States directly concerned, of any power which can at the establishment of this Constitution be exercised only by the Parliament of the United Kingdom or by the Federal Council of Australasia :

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1. See footnotes 1 and 2 on previous page

(xxxix). Matters incidental to the execution of any power vested by this Constitution in the Parliament or in either House thereof, or in the Government of the Commonwealth, or in the Federal Judicature, or in any department or officer of the Commonwealth.

52. The Parliament shall, subject to this Constitution, have exclusive power to make laws for the peace, order and good government of the Commonwealth, with respect to—

- (i.) The seat of Government of the Commonwealth, and all places acquired by the Commonwealth for public purposes :
- (ii.) Matters relating to any department of the public service the control of which is by this Constitution transferred to the Executive Government of the Commonwealth :
- (iii.) Other matters declared by this Constitution to be within the exclusive power of the Parliament.

53. Proposed laws appropriating revenue or moneys, or imposing taxation, shall not originate in the Senate. But a proposed law shall not be taken to appropriate revenue or moneys, or to impose taxation, by reason only of its containing provisions for the imposition or appropriation of fines or other pecuniary penalties, or for the demand or payment or appropriation of fees for licenses, or fees for services under the proposed law.

The Senate may not amend proposed laws imposing taxation, or proposed laws appropriating revenue or moneys for the ordinary annual services of the Government.

The Senate may not amend any proposed laws so as to increase any proposed charge or burden on the people.

The Senate may at any stage return to the House of Representatives any proposed law which the Senate may not amend, requesting, by message, the omission or amendment of any items or provisions therein. And the House of Representatives may, if it thinks fit, make any of such omissions or amendments, with or without modifications.

Except as provided in this section, the Senate shall have equal power with the House of Representatives in respect of all proposed laws.

54. The proposed law which appropriates revenue or moneys for the ordinary annual services of the Government shall deal only with such appropriations.

55. Laws imposing taxation shall deal only with the imposition of taxation, and any provisions therein dealing with any other matter shall be of no effect.

Laws imposing taxation, except laws imposing duties of customs or of excise, shall deal with one subject of taxation only ; but laws imposing duties of customs shall deal with duties of customs only, and laws imposing duties of excise shall deal with duties of excise only.

56. A vote, resolution, or proposed law for the appropriation of revenue or moneys shall not be passed unless the purpose of the appropriation has in the same session been recommended by message of the Governor-General to the house in which the proposal originated.

57. If the House of Representatives passes any proposed law, and the Senate rejects or fails to pass it, or passes it with amendments to which the House of Representatives will not agree, and if after an interval of three months the House of Representatives, in the same or the next session, again passes the proposed law with or without any amendments which have been made, suggested, or agreed to by the Senate, and the Senate rejects or fails to pass it, or passes it with amendments to which the House of Representatives will not agree, the Governor-General may dissolve the Senate and the House of Representatives simultaneously. But such dissolution shall not take place within six months before the date of the expiry of the House of Representatives by effluxion of time.

If after such dissolution the House of Representatives again passes the proposed law, with or without any amendments which have been made, suggested, or agreed to by the Senate, and the Senate rejects or fails to pass it, or passes it with amendments to which the House of Representatives will not agree, the Governor-General may convene a joint sitting of the members of the Senate and the House of Representatives.

The members present at the joint sitting may deliberate and shall vote together upon the proposed law as last proposed by the House of Representatives, and upon amendments, if any, which have been made therein by one House and not agreed to by the other, and any such amendments which are affirmed by an absolute majority of the total number of the members of the Senate and House of Representatives shall be taken to have been carried, and if the proposed law, with the amendments, if any, so carried is affirmed by an absolute majority of the total number of members of the Senate and House of Representatives, it shall be taken to have been duly passed by both Houses of the Parliament, and shall be presented to the Governor-General for the Queen's assent.

58. When a proposed law passed by both Houses of the Parliament is presented to the Governor-General for the Queen's assent, he shall declare, according to his discretion, but subject to this Constitution, that he assents in the Queen's name, or that he withholds assent, or that he reserves the law for the Queen's pleasure.

The Governor-General may return to the House in which it originated any proposed law so presented to him, and may transmit therewith any amendments which he may recommend, and the Houses may deal with the recommendation.

59. The Queen may disallow any law within one year from the Governor-General's assent, and such disallowance on being made known by the Governor-General by speech or message to each of the Houses of the Parliament, or by Proclamation, shall annul the law from the day when the disallowance is so made known.

60. A proposed law reserved for the Queen's pleasure shall not have any force unless and until within two years from the day on which it was presented to the Governor-General for the Queen's assent the Governor-General makes known, by speech or message to each of the Houses of Parliament, or by Proclamation, that it has received the Queen's assent.

## CHAPTER II.—THE EXECUTIVE GOVERNMENT.

61. The executive power of the Commonwealth is vested in the Queen and is exercisable by the Governor-General as the Queen's representative, and extends to the execution and maintenance of this Constitution, and of the laws of the Commonwealth.

62. There shall be a Federal Executive Council to advise the Governor-General in the government of the Commonwealth, and the members of the Council shall be chosen and summoned by the Governor-General and sworn as Executive Councillors, and shall hold office during his pleasure.

63. The provisions of this Constitution referring to the Governor-General in Council shall be construed as referring to the Governor-General acting with the advice of the Federal Executive Council.

64. The Governor-General may appoint officers to administer such departments of State of the Commonwealth as the Governor-General in Council may establish.

Such officers shall hold office during the pleasure of the Governor-General. They shall be members of the Federal Executive Council, and shall be the Queen's Ministers of State for the Commonwealth.

After the first general election no Minister of State shall hold office for a longer period than three months unless he is or becomes a senator or a member of the House of Representatives.

65. Until the Parliament otherwise provides, the Ministers of State shall not exceed seven in number, and shall hold such offices as the Parliament prescribes, or, in the absence of provision, as the Governor-General directs.

66. There shall be payable to the Queen, out of the Consolidated Revenue Fund of the Commonwealth, for the salaries of the Ministers of State, an annual sum which, until the Parliament otherwise provides, shall not exceed twelve thousand pounds a year.

67. Until the Parliament otherwise provides, the appointment and removal of all other officers of the Executive Government of the Commonwealth shall be vested in the Governor-General in Council, unless the appointment is delegated by the Governor-General in Council or by a law of the Commonwealth to some other authority.

68. The command in chief of the naval and military forces of the Commonwealth is vested in the Governor-General as the Queen's representative.

69. On a date or dates to be proclaimed by the Governor-General after the establishment of the Commonwealth the following departments of the public service in each State shall be transferred to the Commonwealth:—<sup>1</sup>

Posts, telegraphs, and telephones:	Lighthouses, lightships, beacons, and buoys:
Naval and military defence:	Quarantine.

But the departments of customs and of excise in each State shall become transferred to the Commonwealth on its establishment.

70. In respect of matters which, under this Constitution, pass to the Executive Government of the Commonwealth, all powers and functions which at the establishment of the Commonwealth are vested in the Governor of a Colony, or in the Governor of a Colony with the advice of his Executive Council, or in any authority of a Colony, shall vest in the Governor-General, or in the Governor-General in Council, or in the authority exercising similar powers under the Commonwealth, as the case requires.

### CHAPTER III.—THE JUDICATURE.

71. The Judicial power of the Commonwealth shall be vested in a Federal Supreme Court, to be called the High Court of Australia, and in such other federal courts as the Parliament creates, and in such other courts as it invests with federal jurisdiction. The High Court shall consist of a Chief Justice and so many other Justices, not less than two, as the Parliament prescribes.

72. The Justices of the High Court and of the other courts created by the Parliament—

- (i.) Shall be appointed by the Governor-General in Council:
- (ii.) Shall not be removed except by the Governor-General in Council, on an address from both Houses of the Parliament in the same session, praying for such removal on the ground of proved misbehaviour or incapacity:
- (iii.) Shall receive such remuneration as the Parliament may fix: but the remuneration shall not be diminished during their continuance in office.

73. The High Court shall have jurisdiction, with such exceptions and subject to such regulations as the Parliament prescribes, to hear and determine appeals from all judgments, decrees, orders, and sentences—

- (i.) Of any Justice or Justices exercising the original jurisdiction of the High Court:
  - (ii.) Of any other federal court or court exercising federal jurisdiction; or of the Supreme Court of any State, or of any other court of any State from which at the establishment of the Commonwealth an appeal lies to the Queen in Council:
  - (iii.) Of the Inter-State Commission, but as to questions of law only:
- and the judgment of the High Court in all such cases shall be final and conclusive.

But no exception or regulation prescribed by the Parliament shall prevent the High Court from hearing and determining any appeal from the Supreme Court of a State in any matter in which at the establishment of the Commonwealth an appeal lies from such Supreme Court to the Queen in Council.

Until the Parliament otherwise provides, the conditions of and restrictions on appeals to the Queen in Council from the Supreme Courts of the several States shall be applicable to appeals from them to the High Court.

1. As to departments and dates of transfer see Section XIX.—COMMONWEALTH FINANCE, § 1 hereinafter.

74. No appeal shall be permitted to the Queen in Council from a decision of the High Court upon any question, howsoever arising, as to the limits *inter se* of the Constitutional powers of the Commonwealth and those of any State or States, or as to the limits *inter se* of the Constitutional powers of any two or more States, unless the High Court shall certify that the question is one which ought to be determined by Her Majesty in Council.

The High Court may so certify if satisfied that for any special reason the certificate should be granted, and thereupon an appeal shall lie to Her Majesty in Council on the question without further leave.

Except as provided in this section, this Constitution shall not impair any right which the Queen may be pleased to exercise by virtue of Her Royal prerogative to grant special leave of appeal from the High Court to Her Majesty in Council. The Parliament may make laws limiting the matters in which such leave may be asked, but proposed laws containing any such limitation shall be reserved by the Governor-General for Her Majesty's pleasure.

75. In all matters—

- (i.) Arising under any treaty ;
- (ii.) Affecting consuls or other representatives of other countries ;
- (iii.) In which the Commonwealth, or a person suing or being sued on behalf of the Commonwealth, is a party ;
- (iv.) Between States, or between residents of different States, or between a State and a resident of another State ;
- (v.) In which a writ of Mandamus or prohibition or an injunction is sought against an officer of the Commonwealth ;

the High Court shall have original jurisdiction.

76. The Parliament may make laws conferring original jurisdiction on the High Court in any matter—

- (i.) Arising under this Constitution, or involving its interpretation ;
- (ii.) Arising under any laws made by the Parliament ;
- (iii.) Of Admiralty and maritime jurisdiction ;
- (iv.) Relating to the same subject-matter claimed under the laws of different States.

77. With respect to any of the matters mentioned in the last two sections the Parliament may make laws—

- (i.) Defining the jurisdiction of any federal court other than the High Court ;
- (ii.) Defining the extent to which the jurisdiction of any federal court shall be exclusive of that which belongs to or is invested in the courts of the States ;
- (iii.) Investing any court of a State with federal jurisdiction.

78. The Parliament may make laws conferring rights to proceed against the Commonwealth or a State in respect of matters within the limits of the judicial power.

79. The federal jurisdiction of any court may be exercised by such number of judges as the Parliament prescribes.

80. The trial on indictment of any offence against any law of the Commonwealth shall be by jury, and every such trial shall be held in the State where the offence was committed, and if the offence was not committed within any State the trial shall be held at such place or places as the Parliament prescribes.

#### CHAPTER IV.—FINANCE AND TRADE.

81. All revenues or moneys raised or received by the Executive Government of the Commonwealth shall form one Consolidated Revenue Fund, to be appropriated for the purposes of the Commonwealth in the manner and subject to the charges and liabilities imposed by this Constitution.

82. The costs, charges and expenses incident to the collection, management, and receipt of the Consolidated Revenue Fund shall form the first charge thereon ; and the revenue of the Commonwealth shall in the first instance be applied to the payment of the expenditure of the Commonwealth.

83. No money shall be drawn from the Treasury of the Commonwealth except under appropriation made by law.

But until the expiration of one month after the first meeting of the Parliament the Governor-General in Council may draw from the Treasury and expend such moneys as may be necessary for the maintenance of any department transferred to the Commonwealth and for the holding of the first elections for the Parliament.

84. When any department of the public service of a State becomes transferred to the Commonwealth, all officers of the department shall become subject to the control of the Executive Government of the Commonwealth.

Any such officer who is not retained in the service of the Commonwealth shall, unless he is appointed to some other office of equal emolument in the public service of the State, be entitled to receive from the State any pension, gratuity, or other compensation, payable under the law of the State on the abolition of his office.

Any such officer who is retained in the service of the Commonwealth shall preserve all his existing and accruing rights, and shall be entitled to retire from office at the time, and on the pension or retiring allowance, which would be permitted by the law of the State if his service with the Commonwealth were a continuation of his service with the State. Such pension or retiring allowance shall be paid to him by the Commonwealth ; but the State shall pay to the Commonwealth a part thereof, to be calculated on the proportion which his term of service with the State bears to his whole term of service, and for the purpose of the calculation his salary shall be taken to be that paid to him by the State at the time of transfer.

Any officer who is, at the establishment of the Commonwealth, in the public service of a State, and who is, by consent of the Governor of the State with the advice of the Executive Council thereof, transferred to the public service of the Commonwealth, shall have the same rights as if he had been an officer of a department transferred to the Commonwealth and were retained in the service of the Commonwealth.

85. When any department of the public service of a State is transferred to the Commonwealth—

- (i.) All property of the State of any kind, used exclusively in connexion with the department, shall become vested in the Commonwealth ; but, in the case of the departments controlling customs and excise and bounties, for such time only as the Governor-General in Council may declare to be necessary ;
- (ii.) The Commonwealth may acquire any property of the State, of any kind used, but not exclusively used in connexion with the department ; the value thereof shall, if no agreement can be made, be ascertained in, as nearly as may be, the manner in which the value of land, or of an interest in land, taken by the State for public purposes is ascertained under the law of the State in force at the establishment of the Commonwealth ;
- (iii.) The Commonwealth shall compensate the State for the value of any property passing to the Commonwealth under this section : if no agreement can be made as to the mode of compensation, it shall be determined under laws to be made by the Parliament ;
- (iv.) The Commonwealth shall, at the date of the transfer, assume the current obligations of the State in respect of the department transferred.

86. On the establishment of the Commonwealth, the collection and control of duties of customs and of excise, and the control of the payment of bounties, shall pass to the Executive Government of the Commonwealth.



87. During a period of ten years after the establishment of the Commonwealth and thereafter until the Parliament otherwise provides, of the net revenue of the Commonwealth from duties of customs and of excise not more than one-fourth shall be applied annually by the Commonwealth towards its expenditure.

The balance shall, in accordance with this Constitution, be paid to the several States, or applied to the payment of interest on debts of the several States taken over by the Commonwealth.<sup>1</sup>

88. Uniform duties of customs shall be imposed within two years after the establishment of the Commonwealth.<sup>2</sup>

89. Until the imposition of uniform duties of customs—

(i.) The Commonwealth shall credit to each State the revenues collected therein by the Commonwealth.

(ii.) The Commonwealth shall debit to each State—

(a) The expenditure therein of the Commonwealth incurred solely for the maintenance or continuance, as at the time of transfer, of any department transferred from the State to the Commonwealth;

(b) The proportion of the State, according to the number of its people, in the other expenditure of the Commonwealth.

(iii.) The Commonwealth shall pay to each State month by month the balance (if any) in favour of the State.

90. On the imposition of uniform duties of customs the power of the Parliament to impose duties of customs and of excise, and to grant bounties on the production or export of goods, shall become exclusive.

On the imposition of uniform duties of customs all laws of the several States imposing duties of customs or of excise, or offering bounties on the production or export of goods, shall cease to have effect, but any grant of or agreement for any such bounty lawfully made by or under the authority of the Government of any State shall be taken to be good if made before the thirtieth day of June, one thousand eight hundred and ninety-eight, and not otherwise.

91. Nothing in this Constitution prohibits a State from granting any aid to or bounty on mining for gold, silver, or other metals, nor from granting, with the consent of both Houses of the Parliament of the Commonwealth expressed by resolution, any aid to or bounty on the production or export of goods.

92. On the imposition of uniform duties of customs, trade, commerce, and intercourse among the States, whether by means of internal carriage or ocean navigation, shall be absolutely free.

But notwithstanding anything in this Constitution, goods imported before the imposition of uniform duties of customs into any State, or into any Colony which, whilst the goods remain therein, becomes a State, shall, on thence passing into another State within two years after the imposition of such duties, be liable to any duty chargeable on the importation of such goods into the Commonwealth, less any duty paid in respect of the goods on their importation.

93. During the first five years after the imposition of uniform duties of customs and thereafter until the Parliament otherwise provides—

(i.) The duties of customs chargeable on goods imported into a State and afterwards passing into another State for consumption, and the duties of excise paid on goods produced or manufactured in a State and afterwards passing into another State for consumption, shall be taken to have been collected not in the former but in the latter State:

1. This has been known as the Braddon clause. The Surplus Revenue Act 1910 provides for the termination of this clause as from the 31st December, 1910, and for the payment to the States of twenty-five shillings per head of population until the 30th June, 1920, or thereafter, until Parliament otherwise provides, subject to certain adjustments for the year ended 30th June, 1911. For further information see Section XIX. hereinafter.

2. Uniform customs duties were imposed by the Customs Tariff 1902, as from 8th October, 1901.

- (ii.) Subject to the last sub-section, the Commonwealth shall credit revenue, debit expenditure, and pay balances to the several States as prescribed by the period preceding the imposition of uniform duties of customs.<sup>1</sup>

94. After five years from the imposition of uniform duties of customs, the Parliament may provide, on such basis as it deems fair, for the monthly payment to the several States of all surplus revenue of the Commonwealth.

95. Notwithstanding anything in this Constitution, the Parliament of the State of Western Australia, if that State be an original State, may, during the first five years after the imposition of uniform duties of customs, impose duties of customs on goods passing into that State and not originally imported from beyond the limits of the Commonwealth; and such duties shall be collected by the Commonwealth.

But any duty so imposed on any goods shall not exceed during the first of such years the duty chargeable on the goods under the law of Western Australia in force at the imposition of uniform duties, and shall not exceed during the second, third, fourth, and fifth of such years respectively, four-fifths, three-fifths, two-fifths, and one-fifth of such latter duty, and all duties imposed under this section shall cease at the expiration of the fifth year after the imposition of uniform duties.

If at any time during the five years the duty on any goods under this section is higher than the duty imposed by the Commonwealth on the importation of the like goods, then such higher duty shall be collected on the goods when imported into Western Australia from beyond the limits of the Commonwealth.

96. During a period of ten years after the establishment of the Commonwealth and thereafter until the Parliament otherwise provides, the Parliament may grant financial assistance to any State on such terms and conditions as the Parliament thinks fit.

97. Until the Parliament otherwise provides, the laws in force in any Colony which has become or becomes a State with respect to the receipt of revenue and the expenditure of money on account of the Government of the Colony, and the review and audit of such receipt and expenditure, shall apply to the receipt of revenue and the expenditure of money on account of the Commonwealth in the State in the same manner as if the Commonwealth, or the Government or an officer of the Commonwealth, were mentioned, whenever the Colony, or the Government or an officer of the Colony is mentioned.

98. The power of the Parliament to make laws with respect to trade and commerce extends to navigation and shipping, and to railways the property of any State.

99. The Commonwealth shall not, by any law or regulation of trade, commerce, or revenue, give preference to one State or any part thereof over another State or any part thereof.

100. The Commonwealth shall not, by any law or regulation of trade or commerce, abridge the right of a State or of the residents therein to the reasonable use of the waters of rivers for conservation or irrigation.

101. There shall be an Inter-State Commission, with such powers of adjudication and administration as the Parliament deems necessary for the execution and maintenance, within the Commonwealth, of the provisions of this Constitution relating to trade and commerce, and of all laws made thereunder.<sup>2</sup>

102. The Parliament may by any law with respect to trade or commerce forbid, as to railways, any preference or discrimination by any State, or by any authority constituted under a State, if such preference or discrimination is undue and unreasonable, or unjust to any State, due regard being had to the financial responsibilities incurred by any State in connection with the construction and maintenance of its railways. But no preference or discrimination shall, within the meaning of this section, be taken to be undue and unreasonable, or unjust to any State, unless so adjudged by the Inter-State Commission.

1. The Surplus Revenue Act 1908, which was amended by the Surplus Revenue Act 1910, states that the provisions of Section 93 of the Constitution shall expire on the date of the commencement of the Surplus Revenue Act 1908, that is, on 13th June, 1908, and also makes provisions in lieu of the expired provisions. The Surplus Revenue Act 1910 repeals the greater part of the provisions of the Act of 1908. See footnote to Section 87 of this Act.

2. The Commission was brought into existence in 1913, under Act No. 33 of 1913.

103. The members of the Inter-State Commission—

- (i.) Shall be appointed by the Governor-General in Council :
- (ii.) Shall hold office for seven years, but may be removed within that time by the Governor-General in Council, on an address from both Houses of Parliament in the same session praying for such removal on the ground of proved misbehaviour or incapacity :
- (iii.) Shall receive such remuneration as the Parliament may fix ; but such remuneration shall not be diminished during their continuance in office.

104. Nothing in this Constitution shall render unlawful any rate for carriage of goods upon a railway, the property of a State, if the rate is deemed by the Inter-State Commission to be necessary for the development of the territory of the State, and if the rate applies equally to goods within the State and to goods passing into the State from other States.

105. The Parliament may take over from the States their public debts [as existing at the establishment of the Commonwealth],<sup>1</sup> or a proportion thereof according to the respective numbers of their people as shewn by the latest statistics of the Commonwealth, and may convert, renew, or consolidate such debts, or any part thereof ; and the State shall indemnify the Commonwealth in respect of the debts taken over, and thereafter the interest payable in respect of the debts shall be deducted and retained from the portions of the surplus revenue of the Commonwealth payable to the several States, or if such surplus is insufficient, or if there is no surplus, then the deficiency or the whole amount shall be paid by the several States.

#### CHAPTER V.—THE STATES.

106. The Constitution of each State of the Commonwealth shall, subject to this Constitution, continue as at the establishment of the Commonwealth, or as at the admission or establishment of the State, as the case may be, until altered in accordance with the Constitution of the State.

107. Every power of the Parliament of a Colony which has become or becomes a State, shall, unless it is by this Constitution exclusively vested in the Parliament of the Commonwealth or withdrawn from the Parliament of the State, continue as at the establishment of the Commonwealth, or as at the admission or establishment of the State, as the case may be.

108. Every law in force in a Colony which has become or becomes a State, and relating to any matter within the powers of the Parliament of the Commonwealth, shall, subject to this Constitution, continue in force in the State ; and, until provision is made in that behalf by the Parliament of the Commonwealth, the Parliament of the State shall have such powers of alteration and of repeal in respect of any such law as the Parliament of the Colony had until the Colony became a State.

109. When a law of a State is inconsistent with a law of the Commonwealth, the latter shall prevail, and the former shall, to the extent of the inconsistency, be invalid.

110. The provisions of this Constitution relating to the Governor of a State extend and apply to the Governor for the time being of the State, or other chief executive officer or administrator of the Government of the State.

111. The Parliament of a State may surrender any part of the State to the Commonwealth ; and upon such surrender, and the acceptance thereof by the Commonwealth, such part of the State shall become subject to the exclusive jurisdiction of the Commonwealth.

112. After uniform duties of customs have been imposed, a State may levy on imports or exports, or on goods passing into or out of the State, such charges as may be necessary for executing the inspection laws of the State ; but the net produce of all charges so levied shall be for the use of the Commonwealth ; and any such inspection laws may be annulled by the Parliament of the Commonwealth.

1. Under Section 2 of the Constitution Alteration (State Debts) 1909, the words in square brackets are omitted.

113. All fermented, distilled, or other intoxicating liquids passing into any State or remaining therein for use, consumption, sale, or storage, shall be subject to the laws of the State as if such liquids had been produced in the State.

114. A State shall not, without the consent of the Parliament of the Commonwealth, raise or maintain any naval or military force, or impose any tax on property of any kind belonging to the Commonwealth, nor shall the Commonwealth impose any tax on property of any kind belonging to a State.

115. A State shall not coin money, nor make anything but gold and silver coin a legal tender in payment of debts.

116. The Commonwealth shall not make any law for establishing any religion, or for imposing any religious observance, or for prohibiting the free exercise of any religion, and no religious test shall be required as a qualification for any office or public trust under the Commonwealth.

117. A subject of the Queen, resident in any State, shall not be subject in any other State to any disability or discrimination which would not be equally applicable to him if he were a subject of the Queen resident in such other State.

118. Full faith and credit shall be given, throughout the Commonwealth, to the laws, the public Acts and records, and the judicial proceedings of every State.

119. The Commonwealth shall protect every State against invasion, and, on the application of the Executive Government of the State, against domestic violence.

120. Every State shall make provision for the detention in its prisons of persons accused or convicted of offences against the laws of the Commonwealth, and for the punishment of persons convicted of such offences, and the Parliament of the Commonwealth may make laws to give effect to this provision.

#### CHAPTER VI.—NEW STATES.

121. The Parliament may admit to the Commonwealth or establish new States, and may upon such admission or establishment make or impose such terms and conditions, including the extent of representation in either House of the Parliament, as it thinks fit.

122. The Parliament may make laws for the government of any territory surrendered by any State to and accepted by the Commonwealth, or of any territory placed by the Queen under the authority of and accepted by the Commonwealth, or otherwise acquired by the Commonwealth, and may allow the representation of such territory in either House of the Parliament to the extent and on the terms which it thinks fit.

123. The Parliament of the Commonwealth may, with the consent of the Parliament of a State, and the approval of the majority of the electors of the State voting upon the question, increase, diminish, or otherwise alter the limits of the State, upon such terms and conditions as may be agreed on, and may, with the like consent, make provision respecting the effect and operation of any increase or diminution or alteration of territory in relation to any State affected.

124. A new State may be formed by separation of territory from a State, but only with consent of the Parliament thereof, and a new State may be formed by the union of two or more States or parts of States, but only with the consent of the Parliaments of the States affected.

#### CHAPTER VII.—MISCELLANEOUS.

125. The seat of Government of the Commonwealth shall be determined by the Parliament, and shall be within territory which shall have been granted to or acquired by the Commonwealth, and shall be vested in and belong to the Commonwealth, and shall be in the State of New South Wales, and be distant not less than one hundred miles from Sydney.

Such territory shall contain an area of not less than one hundred square miles, and such portion thereof as shall consist of Crown lands shall be granted to the Commonwealth without any payment therefor.

The Parliament shall sit at Melbourne until it meet at the seat of Government.

126. The Queen may authorise the Governor-General to appoint any person, or any persons jointly or severally, to be his deputy or deputies within any part of the Commonwealth, and in that capacity to exercise during the pleasure of the Governor-General such powers and functions of the Governor-General as he thinks fit to assign to such deputy or deputies, subject to any limitations expressed or directions given by the Queen: but the appointment of such deputy or deputies shall not affect the exercise by the Governor-General himself of any power or function.

127. In reckoning the numbers of the people of the Commonwealth, or of a State or other part of the Commonwealth, aboriginal natives shall not be counted.

#### CHAPTER VIII.—ALTERATION OF THE CONSTITUTION.<sup>1</sup>

128. This constitution shall not be altered except in the following manner:—

The proposed law for the alteration thereof must be passed by an absolute majority of each House of the Parliament, and not less than two nor more than six months after its passage through both Houses the proposed law shall be submitted in each State to the electors qualified to vote for the election of members of the House of Representatives.<sup>2</sup>

But if either House passes any such proposed law by an absolute majority, and the other House rejects or fails to pass it or passes it with any amendment to which the first-mentioned House will not agree, and if after an interval of three months the first-mentioned House in the same or the next session again passes the proposed law by an absolute majority with or without any amendment which has been made or agreed to by the other House, and such other House rejects or fails to pass it or passes it with any amendment to which the first-mentioned House will not agree, the Governor-General may submit the proposed law as last proposed by the first-mentioned House, and either with or without any amendments subsequently agreed to by both Houses, to the electors in each State qualified to vote for the election of the House of Representatives.

When a proposed law is submitted to the electors the vote shall be taken in such manner as the Parliament prescribes. But until the qualification of electors of members of the House of Representatives becomes uniform throughout the Commonwealth, only one-half the electors voting for and against the proposed law shall be counted in any State in which adult suffrage prevails.

And if in a majority of the States a majority of the electors voting approve the proposed law, and if a majority of all the electors voting also approve the proposed law, it shall be presented to the Governor-General for the Queen's assent.

No alteration diminishing the proportionate representation of any State in either House of the Parliament, or the minimum number of representatives of a State in the House of Representatives, or increasing, diminishing, or otherwise altering the limits of the State, or in any manner affecting the provisions of the Constitution in relation thereto, shall become law unless the majority of the electors voting in that State approve the proposed law.

#### SCHEDULE.

##### OATH.

I, A.B., do swear that I will be faithful and bear true allegiance to Her Majesty Queen Victoria, Her heirs and successors according to law. SO HELP ME GOD!

##### AFFIRMATION.

I, A.B., do solemnly and sincerely affirm and declare that I will be faithful and bear true allegiance to Her Majesty Queen Victoria, Her heirs and successors according to law.

(NOTE.—*The name of the King or Queen of the United Kingdom of Great Britain and Ireland for the time being is to be substituted from time to time.*)

1. The Constitution has been altered by the following Acts:—The Constitution Alteration (Senate Elections) 1906 (No. 1 of 1907); and the Constitution Alteration (State Debts) 1909 (No. 3 of 1910).

2. The Referendum (Constitution Alteration) Act, 1906-1910, provides the necessary machinery for the submission to the electors of any proposed law for the alteration of the Constitution.

2. **The Royal Proclamation.**—The preceding Act received the Royal assent on the 9th July, 1900. This made it lawful (see Sec. 3) to declare that the people of Australia should be united in a Federal Commonwealth. This proclamation, made on the 17th September, 1900, constituted the Commonwealth as from the 1st January, 1901: it reads as follows :—

BY THE QUEEN.

A PROCLAMATION.

(Signed) VICTORIA R.

WHEREAS by an Act of Parliament passed in the Sixty-third and Sixty-fourth Years of Our Reign, intituled "An Act to constitute the Commonwealth of Australia," it is enacted that it shall be lawful for the Queen, with the advice of the Privy Council, to declare by Proclamation, that, on and after a day therein appointed, not being later than One Year after the passing of this Act, the people of *New South Wales, Victoria, South Australia, Queensland, and Tasmania*, and also, if Her Majesty is satisfied that the people of *Western Australia* have agreed thereto, of *Western Australia*, shall be united in a Federal Commonwealth under the name of the Commonwealth of Australia.

And whereas We are satisfied that the people of *Western Australia* have agreed thereto accordingly.

We therefore, by and with the advice of Our Privy Council, have thought fit to issue this Our Royal Proclamation, and We do hereby declare that on and after the First day of *January* One thousand nine hundred and one, the people of *New South Wales, Victoria, South Australia, Queensland, Tasmania, and Western Australia* shall be united in a Federal Commonwealth under the name of the Commonwealth of Australia.

Given at Our Court at *Balmoral* this Seventeenth day of *September*, in the Year of Our Lord One thousand nine hundred, and in the Sixty-fourth Year of Our Reign.

GOD SAVE THE QUEEN.

### § 9. Commonwealth Legislation.

1. **The Commonwealth Parliaments.**—The first Parliament of the Commonwealth was convened by proclamation dated 29th April, 1901, by His Excellency the late Marquis of Linlithgow, then Earl of Hopetoun, Governor-General. It was opened on the 9th May following by H.R.H. the Duke of Cornwall and York, who had been sent to Australia for that purpose by His Majesty the King; the Rt. Hon. Sir Edmund Barton, P.C., G.C.M.G., K.C., being Prime Minister.

The following table gives the number and duration of Parliaments since Federation :—

COMMONWEALTH PARLIAMENTS, 1901 to 1917.

	Date of Opening.	Date of Dissolution.
First Parliament ... ..	29th April, 1901 ...	23rd November, 1903.
Second „ ... ..	2nd March, 1904 ...	12th October, 1906.
Third „ ... ..	20th February, 1907 ...	19th February, 1910.
Fourth „ ... ..	1st July, 1910 ...	23rd April, 1913.
Fifth „ ... ..	9th July, 1913 ...	27th June, 1914.*
Sixth „ ... ..	8th October, 1914 ...	26th March, 1917.
Seventh „ ... ..	14th June, 1917 ...	—

\* On this occasion, the Governor-General, acting on the advice of the Ministry, and under section 57 of the Constitution, granted a dissolution of both the Senate and the House of Representatives, this being the first occasion since Federation on which a dissolution of both Houses had occurred.

The Debates of these Parliaments will be found in Volumes I. to LXXXI. of the Parliamentary Debates, as follows:—

First Parliament,	1st Session	Vols.	I. to	XII., pp. 1 to 16,744
"	2nd "	"	XIII. "	XVII., " 1 " 6,440
Second Parliament,	1st "	"	XVIII. "	XXIV., " 1 " 8,618
"	2nd "	"	XXV. "	XXX., " 1 " 7,461
"	3rd "	"	XXXI. "	XXXV., " 1 " 6,491
Third Parliament,	1st "	"	XXXVI. 1ST PART	" 1 " 141
"	2nd "	"	XXXVI. 2ND PART to	XLVI., " 1 " 12,203
"	3rd "	"	XLVII. to	XLVIII., " 1 " 3,180
"	4th "	"	XLIX. "	LIV., " 1 " 7,296
Fourth Parliament,	1st "	"	LV. "	LIX., " 1 " 6,893
"	2nd "	"	LX. "	LXIII., " 1 " 4,983
"	3rd "	"	LXIV. "	LXIX., " 1 " 7,568
Fifth Parliament,	1st "	"	LXX. "	LXXII., " 1 " 4,798
"	2nd "	"	LXXIII. "	LXXIV., " 1 " 2,658
Sixth Parliament	1st "	"	LXXV. "	LXXXI., " 1 " 11,708
Seventh Parliament	"	"	"	incomplete

2. The Several Administrations.—The following tabular statements shew the names of the several Governors-General, and the constitution of the Ministries which have directed the administration of the affairs of the Commonwealth since its creation:—

(a) GOVERNORS-GENERAL.

- Rt. Hon. EARL OF HOPETOUN (afterwards MARQUIS OF LINLITHGOW), P.C., K.T., G.C.M.G., G.C.V.O. Sworn 1st January, 1901; recalled 9th May, 1902.
- Rt. Hon. HALLAM BARON TENNYSON, G.C.M.G. (Act. Governor-General). Sworn 17th July, 1902.
- Rt. Hon. HALLAM BARON TENNYSON, G.C.M.G. (Governor-General). Sworn 9th January, 1903; recalled 21st January, 1904.
- Rt. Hon. HENRY STAFFORD NORTHCOTE, P.C., G.C.M.G., G.C.I.E., C.B. Sworn 21st January, 1904; recalled 8th September, 1908.
- Rt. Hon. WILLIAM HUMBLE EARL OF DUDLEY, P.C., G.C.M.G., G.C.V.O., etc. Sworn 9th September, 1908; recalled 31st July, 1911.
- Rt. Hon. THOMAS BARON DENMAN, P.C., G.C.M.G., K.C.V.O. Sworn 31st July, 1911; recalled 16th May, 1914.
- Rt. Hon. SIR RONALD CRAUFURD MUNRO FERGUSON, P.C., G.C.M.G. Sworn 18th May, 1914.

(b) BARTON ADMINISTRATION, 1st January, 1901, to 23rd September, 1903.

DEPARTMENTS.	MINISTERS.
External Affairs ...	Rt. Hon. SIR EDMUND BARTON, P.C., G.C.M.G., K.C.
Attorney-General ...	Hon. ALFRED DEAKIN.
Home Affairs ...	Hon. SIR WILLIAM JOHN LYNE, K.C.M.G. (to 7/8/'03).
Treasury ...	Rt. Hon. SIR JOHN FORREST, P.C., G.C.M.G. (from 7/8/'03).*
Trade and Customs ...	Rt. Hon. SIR GEORGE TURNER, P.C., K.C.M.G.
	Rt. Hon. CHARLES CAMERON KINGSTON, P.C., K.C. (resigned 24/7/'03)
	Hon. SIR WILLIAM JOHN LYNE, K.C.M.G. (from 7/8/'03).
Defence ...	The Hon. SIR JAMES ROBERT DICKSON, K.C.M.G. (died 10/1/'01).
	Rt. Hon. SIR JOHN FORREST, P.C., G.C.M.G. (17/1/'01 to 7/8/'03)*
	Hon. JAMES GEORGE DRAKE (from 7/8/'03).
Postmaster-General ...	Rt. Hon. SIR JOHN FORREST, P.C., G.C.M.G. (to 17/1/'01).*
	Hon. JAMES GEORGE DRAKE (5/2/'01 to 7/8/'03).
	Hon. SIR PHILIP OAKLEY FYSH, K.C.M.G. (from 7/8/'03).
Vice-President Executive Council	Hon. RICHARD EDWARD O'CONNOR, K.C.
Without Portfolio ...	Hon. N. E. LEWIS (to 23/4/'01).†
	Hon. SIR PHILIP OAKLEY FYSH, K.C.M.G. (26/4/'01 to 7/8/'03).

(c) First DEAKIN ADMINISTRATION, 23rd September, 1903, to 26th April, 1904.

DEPARTMENTS.	MINISTERS.
External Affairs ...	Hon. ALFRED DEAKIN.
Trade and Customs ...	Hon. SIR WILLIAM JOHN LYNE, K.C.M.G.
Treasury ...	Rt. Hon. SIR GEORGE TURNER, P.C., K.C.M.G.
Home Affairs ...	Rt. Hon. SIR JOHN FORREST, P.C., G.C.M.G.*
Attorney-General ...	Hon. JAMES GEORGE DRAKE.
Postmaster-General ...	Hon. SIR PHILIP OAKLEY FYSH, K.C.M.G.
Defence ...	Hon. AUSTIN CHAPMAN.
Vice-President Executive Council	Hon. THOMAS PLAYFORD.

\* Created Lord Forrest of Bunbury, 1918. † K.C.M.G., 1902.

## (d) WATSON ADMINISTRATION, 26th April to 17th August, 1904.

DEPARTMENTS.	MINISTERS
Treasurer ... ..	Hon. JOHN CHRISTIAN WATSON.
External Affairs ... ..	Hon. WILLIAM MORRIS HUGHES.*
Attorney-General ... ..	Hon. HENRY BOURNES HIGGINS, K.C.
Home Affairs ... ..	Hon. EGERTON LEE BATCHELOR.
Trade and Customs ... ..	Hon. ANDREW FISHER.†
Defence ... ..	Hon. ANDERSON DAWSON.
Postmaster-General ... ..	Hon. HUGH MAHON.
Vice-President Executive C'ncl	Hon. GREGOR MCGREGOR.

## (e) REID-MCLEAN ADMINISTRATION, 17th August, 1904, to 4th July, 1905.

DEPARTMENTS.	MINISTERS.
External Affairs ... ..	Rt. Hon. GEORGE HOUSTOUN REID, P.C., K.C.‡
Trade and Customs ... ..	Hon. ALLAN MCLEAN
Attorney-General ... ..	Hon. SIR JOSIAH HENRY SYMON, K.C.M.G., K.C.
Treasury ... ..	Rt. Hon. SIR GEORGE TURNER, P.C., K.C.M.G.
Home Affairs ... ..	Hon. DUGALD THOMSON.
Defence ... ..	Hon. JAMES WHITESIDE McCAY §
Postmaster-General ... ..	Hon. SYDNEY SMITH
Vice-President Executive C'ncl	Hon. JAMES GEORGE DRAKE.

## (f) SECOND DEAKIN ADMINISTRATION, 4th July, 1905, to 12th November, 1908.

DEPARTMENTS.	MINISTERS.
External Affairs ... ..	Hon. ALFRED DEAKIN
Attorney-General ... ..	{ Hon. ISAAC ALFRED ISAACS, K.C. (to 12/10/06). Hon. LITTLETON ERNEST GROOM (from 12/10/06).
Trade and Customs ... ..	{ Hon. SIR WILLIAM JOHN LYNE, K.C.M.G. (to 30/7/07). Hon. AUSTIN CHAPMAN (from 30/7/07).
Treasurer ... ..	{ Rt. Hon. SIR JOHN FORREST, P.C., G.C.M.G. (to 30/7/07.)¶ Hon. SIR WILLIAM JOHN LYNE (from 30/7/07).
Postmaster-General ... ..	{ Hon. AUSTIN CHAPMAN (to 30/7/07). Hon. SAMUEL MAUGER (from 30/7/07).
Defence ... ..	{ Hon. THOMAS PLAYFORD (to 24/1/07). Hon. THOMAS THOMSON EWING (from 24/1/07).¶
Home Affairs ... ..	{ Hon. LITTLETON ERNEST GROOM (to 12/10/06). Hon. THOMAS THOMSON EWING (from 12/10/06 to 24/1/07).¶ Hon. JOHN HENRY KEATING (from 24/1/07).
Vice-President Executive C'ncl	{ Hon. THOMAS THOMSON EWING (to 12/10/06).¶ Hon. JOHN HENRY KEATING (from 12/10/06 to 20/2/07). Hon. ROBERT WALLACE BEST (from 20/2/07).¶
Honorary Ministers ... ..	{ Hon. J. H. KEATING (from 5/7/05 to 12/10/06). Hon. S. MAUGER (from 12/10/06 to 30/7/07). Hon. J. HUME COOK (from 28/1/08).

## (g) FIRST FISHER ADMINISTRATION, 12th November, 1908, to 2nd June, 1909.

DEPARTMENTS.	MINISTERS.
Treasurer ... ..	Hon. ANDREW FISHER.†
Attorney-General ... ..	Hon. WILLIAM MORRIS HUGHES.*
External Affairs ... ..	Hon. EGERTON LEE BATCHELOR.
Home Affairs ... ..	Hon. HUGH MAHON.
Postmaster-General ... ..	Hon. JOSIAH THOMAS.
Defence ... ..	Hon. GEORGE FOSTER PEARCE.
Trade and Customs ... ..	Hon. FRANK GWYNNE TUDOR.
Vice-President Executive C'ncl	Hon. GREGOR MCGREGOR.
Honorary Minister ... ..	Hon. JAMES HUTCHISON

## (h) THIRD DEAKIN ADMINISTRATION, 2nd June, 1909, to 29th April, 1910.

DEPARTMENTS.	MINISTERS.
Prime Minister (without P'tfolio)	Hon. ALFRED DEAKIN.
Defence... ..	Hon. JOSEPH COOK.**
Treasurer ... ..	Rt. Hon. SIR JOHN FORREST, P.C., G.C.M.G.‡
Trade and Customs ... ..	Hon. SIR ROBERT WALLACE BEST, K.C.M.G.
External Affairs ... ..	Hon. LITTLETON ERNEST GROOM.
Attorney-General ... ..	Hon. PATRICK MCMAHON GLYNN.
Postmaster-General ... ..	Hon. SIR JOHN QUICK.
Home Affairs... ..	Hon. GEORGE WARBURTON FULLER.
Vice-President Executive C'ncl	Hon. EDWARD DAVIS MILLEN.
Honorary Minister ... ..	Colonel The Hon. JUSTIN FOX GREENLAW FOXTON, C.M.G.

\* P.C., 1916. † P.C., 1911. ‡ K.C.M.G., 1909; G.C.M.G., 1911; G.C.B., 1916. § K.C.M.G., 1918.  
 ¶ Created Lord Forrest of Bunbury, 1918. ¶ K.C.M.G., 1908. \*\* P.C., 1914; G.C.M.G., 1918.



## (i) SECOND FISHER ADMINISTRATION, 29th April, 1910, to 20th June, 1913.

DEPARTMENTS.	MINISTERS.
Treasurer ... ..	Hon. ANDREW FISHER.*
Attorney-General ... ..	Hon. WILLIAM MORRIS HUGHES.†
External Affairs ... ..	{ Hon. EGERTON LEE BATCHELOR (died Oct., 1911). Hon. JOSIAH THOMAS (from 14/10/11).
Postmaster-General ... ..	{ Hon. JOSIAH THOMAS (to 14/10/11). Hon. CHARLES EDWARD FRAZER (from 14/10/11).
Defence ... ..	Hon. GEORGE FOSTER PEARCE.
Trade and Customs ... ..	Hon. FRANK GWYNNE TUDOR.
Home Affairs ... ..	Hon. KING O'MALLEY.
Vice-President Executive C'ncil	Hon. GREGOR MCGREGOR.
Honorary Ministers ... ..	{ Hon. EDWARD FINDLEY. Hon. CHARLES EDWARD FRAZER (to 14/10/11). Hon. ERNEST ALFRED ROBERTS (from 23/10/11).

## (j) COOK ADMINISTRATION, 20th June, 1913, to 17th September, 1914.

DEPARTMENTS.	MINISTERS.
Home Affairs ... ..	Hon. JOSEPH COOK.‡
Treasurer ... ..	Rt. Hon. SIR JOHN FORREST, P.C., G.C.M.G. §
Attorney-General ... ..	Hon. WILLIAM HILL IRVINE, K.C.
Defence ... ..	Hon. EDWARD DAVIS MILLEN.
External Affairs ... ..	Hon. PATRICK McMAHON GLYNN, K.C.
Trade and Customs ... ..	Hon. LITTLETON ERNEST GROOM.
Postmaster-General ... ..	Hon. AGAR WYNNE
Vice-President Executive C'ncil	Hon. JAMES HIERs M'COLL.
Honorary Ministers ... ..	{ Hon. JOHN SINGLETON CLEMONS. Hon. WILLIAM HENRY KELLY.

## (k) THIRD FISHER ADMINISTRATION, 17th September, 1914, to 27th October, 1915.

DEPARTMENTS.	MINISTERS.
Treasurer ... ..	Rt. Hon. ANDREW FISHER, P.C.
Attorney-General ... ..	Hon. WILLIAM MORRIS HUGHES.†
Defence ... ..	Hon. GEORGE FOSTER PEARCE.
Trade and Customs ... ..	Hon. FRANK GWYNNE TUDOR.
External Affairs ... ..	{ Hon. JOHN ANDREW ARTHUR (died December, 1914). Hon. HUGH MAHON (from 14/12/14).
Home Affairs ... ..	Hon. WILLIAM OLIVER ARCHIBALD.
Postmaster-General ... ..	Hon. WILLIAM GUTHRIE SPENCE.
Minister for the Navy ... ..	Hon. JENS AUGUST JENSEN (from 12/7/15).
Vice-President Executive C'ncil	Hon. ALBERT GARDINER.
Assistant Ministers ... ..	{ Hon. HUGH MAHON (to 14/12/14). Hon. JENS AUGUST JENSEN (to 12/7/15). Hon. EDWARD JOHN RUSSELL.

## (l) First HUGHES ADMINISTRATION from 27th October, 1915, to 14th Nov., 1916.

DEPARTMENTS.	MINISTERS.
Prime Minister & Attor.-General	Hon. WILLIAM MORRIS HUGHES.†
Defence ... ..	Hon. GEORGE FOSTER PEARCE.
Trade and Customs ... ..	{ Hon. FRANK GWYNNE TUDOR (to 14/3/16). Hon. WILLIAM MORRIS HUGHES (29/9/16).†
Treasurer ... ..	Hon. WILLIAM GUY HIGGS.‡
Minister for the Navy ... ..	Hon. JENS AUGUST JENSEN.
Home Affairs ... ..	Hon. KING O'MALLEY.
External Affairs ... ..	Hon. HUGH MAHON.
Postmaster-General ... ..	Hon. WILLIAM WEBSTER.
Vice-President Executive C'ncil	Hon. ALBERT GARDINER.¶
Assistant Minister ... ..	Hon. EDWARD JOHN RUSSELL.¶

## (m) Second HUGHES ADMINISTRATION from 14th Nov., 1916, to 17th Feb., 1917.

DEPARTMENTS.	MINISTERS.
Prime Minister & Attor.-General	Rt. Hon. WILLIAM MORRIS HUGHES, P.C.
Minister for Defence ... ..	Hon. GEORGE FOSTER PEARCE.
Minister for the Navy ... ..	Hon. JENS AUGUST JENSEN.
Postmaster-General ... ..	Hon. WILLIAM WEBSTER.
Treasurer ... ..	Hon. ALEXANDER POYNTON.
Minister for Trade and Customs	Hon. WILLIAM OLIVER ARCHIBALD.
Minister for Home Affairs ... ..	Hon. FREDERICK WILLIAM BAMFORD.
Minister for Works ... ..	Hon. PATRICK JOSEPH LYNCH.
Vice-President Executive C'ncil	Hon. WILLIAM GUTHRIE SPENCE.
Assistant Ministers ... ..	{ Hon. EDWARD JOHN RUSSELL. Hon. WILLIAM HENRY LAIRD SMITH.

\* P.C., 1911. † P.C., 1916. ‡ P.C., 1914; G.C.M.G., 1918. § Created Lord Forrest of Bunbury, 1918. || K.C.M.G., 1914. ¶ Resigned 27/10/16.

(n) AUSTRALIAN NATIONAL WAR GOVERNMENT from 17th February, 1917,  
to 8th January, 1918.

## DEPARTMENTS.

## MINISTERS.

Prime Minister and Attorney-General	...	...	Rt. Hon. WILLIAM MORRIS HUGHES, P.C.
Minister for the Navy	...	...	Rt. Hon. JOSEPH COOK, P.C.*
Treasurer	...	...	Rt. Hon. SIR JOHN FORREST, P.C., G.C.M.G.†
Minister for Defence	...	...	Hon. GEORGE FOSTER PEARCE.
Vice-President Executive Council	{ Hon. EDWARD DAVIS MILLEN.		
	{ Hon. LITTLETON ERNEST GROOM (from 16/11/17).		
Minister for Repatriation	...	...	Hon. EDWARD DAVIS MILLEN (from 28/9/17).
Minister for Works & Railways	...	...	Hon. WILLIAM ALEXANDER WATT.
Minister for Home & Territories	...	...	Hon. PATRICK McMAHON GLYNN, K.C.
Minister for Trade and Customs	...	...	Hon. JENS AUGUST JENSEN.
Postmaster-General	...	...	Hon. WILLIAM WEBSTER.
Honorary Ministers	...	...	{ Hon. LITTLETON ERNEST GROOM.
	...	...	{ Hon. EDWARD JOHN RUSSELL.

## (o) AUSTRALIAN NATIONAL WAR GOVERNMENT from 10th January, 1918.

## DEPARTMENTS.

## MINISTERS.

Prime Minister and Attorney-General	...	...	Rt. Hon. WILLIAM MORRIS HUGHES, P.C.
Minister for the Navy	...	...	Rt. Hon. JOSEPH COOK, P.C.*
Treasurer	...	...	{ Rt. Hon. LORD FORREST, P.C., G.C.M.G.
	...	...	{ Hon. WILLIAM ALEXANDER WATT (from 27/3/18).
Minister for Defence	...	...	Hon. GEORGE FOSTER PEARCE.
Minister for Repatriation	...	...	Hon. EDWARD DAVIS MILLEN.
Minister for Works & Railways	{ Hon. WILLIAM ALEXANDER WATT.		
	{ Hon. LITTLETON ERNEST GROOM (from 27/3/18)		
Minister for Home & Territories	...	...	Hon. PATRICK McMAHON GLYNN, K.C.
Minister for Trade and Customs	...	...	Hon. JENS AUGUST JENSEN.
Postmaster-General	...	...	Hon. WILLIAM WEBSTER
Vice-President Executive Council	{ Hon. LITTLETON ERNEST GROOM.		
	{ Hon. EDWARD JOHN RUSSELL (from 27/3/18).		
	{ Hon. EDWARD JOHN RUSSELL (to 27/3/18).		
	{ Hon. ALEXANDER POYNTON (from 26/3/18).		
Honorary Ministers	...	...	{ Hon. GEORGE HENRY WISE (from 26/3/18).
	...	...	{ Hon. WALTER MASSY GREENE (from 26/3/18).
	...	...	{ Hon. RICHARD BEAUMONT ORCHARD (from 26/3/18).

\* G.C.M.G., 1918. † Created Lord Forrest of Bunbury, 1918.

A further list of the Ministers of State for the Commonwealth, arranged according to the respective offices occupied, is given in the section of this book dealing with the subject of *General Government* (see Section XXV.).

3. **The Course of Legislation.**—The actual legislation by the Commonwealth Parliament up to the end of the 1917 session is indicated in alphabetical order in "Vol. 15 of the Acts of the Parliament of the Commonwealth of Australia, passed in the session of 1917, with Tables, Appendix and Indexes." A "Chronological Table of Acts passed from 1901 to 1917, shewing how they are affected by subsequent legislation or lapse of time" is also given, and further "A Table of Commonwealth Legislation," for the same period, "in relation to the several provisions of the Constitution," is furnished. Reference may be made to these for complete information. The nature of Commonwealth legislation, up to December, 1917, and its relation to the several provisions of the Constitution, are set forth in the following tabular statement:—

**ANALYTIC TABLE OF COMMONWEALTH LEGISLATION  
FROM 1901 to DECEMBER, 1917, IN RELATION TO THE SEVERAL PROVISIONS  
OF THE CONSTITUTION.<sup>1</sup>**

Section of Constitution.	Short Title of Commonwealth Act.*
	<b>AMENDMENT OF THE CONSTITUTION.</b>
	Constitution Alteration (Senate Elections) 1906.
	Constitution Alteration (State Debts) 1909.
	<b>PARLIAMENTARY AND ELECTORAL LAW.</b>
8—30	PARLIAMENTARY FRANCHISE— Commonwealth Franchise Act 1902.
9—34	ELECTIONS— Commonwealth Electoral Act 1902-1911. Senate Elections Act 1903. Commonwealth Electoral (War-time) Act 1917.
24	DETERMINATION OF NUMBER OF MEMBERS OF HOUSE OF REPRESENTATIVES— Representation Act 1905. Representation Act 1916.
47	DISPUTED ELECTIONS AND QUALIFICATIONS— Commonwealth Electoral Act 1902-1911, Part XVI. Disputed Elections and Qualifications Act 1907.
48	ALLOWANCES TO MEMBERS— <i>Parliamentary Allowances Act 1902.*</i> Parliamentary Allowances Act 1907.
49	PRIVILEGES OF PARLIAMENT— Parliamentary Papers Act 1908.
	<b>GENERAL LEGISLATION.</b>
51—(i.)	TRADE AND COMMERCE—EXTERNAL AND INTERSTATE— Sea Carriage of Goods Act 1904 [ <i>Bills of Lading</i> ]. Secret Commissions Act 1905. Commerce (Trade Descriptions) Act 1905 [ <i>Merchandise Marks</i> ]. Australian Industries Preservation Act 1906-1910 [ <i>Trusts and Dumping</i> ]. Spirits Act 1906-1915. <i>Seamen's Compensation Act 1909.*</i> Customs (Inter-State Accounts) Act 1910. Northern Territory Acceptance Act 1910 (s. 13). Seamen's Compensation Act 1911. Navigation Act 1912. Norfolk Island Act 1913 (s. 15). Trading with the Enemy Act 1914-1916. Meat Export Trade Commission Act 1914. Enemy Contracts Annulment Act 1915. Freight Arrangements Act 1915-1917. River Murray Waters Act 1915. Sugar Purchase Act 1915-1917.
(ii.)	TAXATION— <i>Machinery Acts—</i> Customs Act 1901-1916. Beer Excise Act 1901-1912. Distillation Act 1901. Excise Act 1901. Spirits Act 1906-1915. Excise Procedure Act 1907. Australian Notes Act 1910-1914 (s. 12). Land Tax Assessment Act 1910-1916. Estate Duty Assessment Act 1914-1916. Income Tax Assessment Act 1915-1916. Entertainments Tax Assessment Act 1916. War-time Profits Tax Assessment Act 1917.

1. This Table has been prepared by Sir Robert Garran, Solicitor-General to the Commonwealth.

\* Acts whose short titles are printed in italics with a \* have been repealed or have expired.

Section of Constitution.	Short Title of Commonwealth Act.*
51 (ii.)	<p><i>Taxing Acts—</i>  Customs Tariff 1902.  <i>Customs Tariff 1906 [Agricultural Machinery].*</i>  Customs Tariff (South African Preference) 1906; <i>amended by</i> Customs Tariff 1908 (s. 9).  Customs Tariff 1908; <i>amended by</i> Customs Tariff Amendment 1908, and Customs Tariff 1910, and Customs Tariff 1911.  Excise Tariff 1902; <i>amended by</i> Sugar Rebate Abolition Act 1903, <i>Excise Tariff 1905,* Excise Tariff (Amendment) 1906,*</i> Excise Tariff 1908; and <i>Excise (Sugar) Act 1910.*</i>  Excise Tariff 1906 [<i>Agricultural Machinery</i>]; 1906 [<i>Spirits</i>].  Excise Tariff 1908; <i>amended by</i> Excise Tariff (Starch) 1908.  Bank Notes Tax Act 1910.  Land Tax Act 1910-1914.  Sugar Excise Repeal Act 1912.  <i>Excise Tariff 1913.*</i>  Estate Duty Act 1914.  Income Tax Acts 1915.  Income Tax Act 1916.  Entertainments Tax Act 1916.  Customs Tariff Validation Act 1917.  Excise Tariff Validation Act 1917.  War-time Profits Tax Act 1917.  Income Tax Act 1917.</p>
(iii.)	<p><b>BOUNTIES ON PRODUCTION OR EXPORT—</b>  <i>Sugar Bounty Acts 1903,* 1905,* 1910,* 1912.*</i>  Bounties Act 1907-1912.  <i>Manufactures Encouragement Act 1908-1914*</i>  <i>Shale Oil Bounties Act 1910.*</i>  Sugar Bounty Abolition Act 1912.  Wood Pulp and Rock Phosphate Bounties Act 1912-1917.  <i>Sugar Bounty Act 1913.*</i>  Iron Bounty Act 1914-1915.  Shale Oil Bounty Act 1917.</p>
(iv.)	<p><b>BORROWING MONEY ON THE PUBLIC CREDIT OF THE COMMONWEALTH—</b>  Commonwealth Inscribed Stock Act 1911-1915. Loan Act 1911-1914, 1912-1914, 1913-1914, 1914, 1915.  <i>Naval Loan Act 1909*</i>  Naval Loan Repeal Act 1910.  Treasury Bills Act 1914-1915.  War Loan (United Kingdom) Act 1914-1917.  War Loan Act (No. 1) 1915.  War Loan (United Kingdom) Act 1915-1917.  War Loan Act (No. 3) 1915.  Sugar Purchase Act 1915-1917.  Freight Arrangements Act 1915-1917.  States Loan Act 1916.  War Loan Act (No. 1) 1916.  War Loan Act (United Kingdom, No. 2) 1916.  States Loan Act 1917.  War Loan Act 1917.</p>
(v.)	<p><b>POSTAL, TELEGRAPHIC, AND TELEPHONIC SERVICES—</b>  Post and Telegraph Act 1901-1916.  Post and Telegraph Rates Act 1902-1913.  Wireless Telegraphy Act 1905-1915.  Tasmanian Cable Rates Act 1906.  Telegraph Act 1909.  Postal Rates Act 1910.  Purchase Telephone Lines Acquisition Act 1911.  Pacific Cable Act 1911.</p>

\* Acts whose short titles are printed in italics with a \* have been repealed or have expired.

Section of Constitution.	Short Title of Commonwealth Act.*
51 (vi.)	<p>NAVAL AND MILITARY DEFENCE—</p> <p><i>General—</i></p> <p>Naval Agreement Act 1903-1912.  <i>Naval Loan Act 1909.*</i>  Naval Loan Repeal Act 1910.  Defence Act 1903-1917.  Telegraph Act 1909.  Naval Defence Act 1910-1912.  Defence Lands Purchase Act 1913.</p> <p><i>War Legislation—</i></p> <p>Trading with the Enemy Act 1914-1916.  War Precautions Act 1914-1916.  War Census Act 1915-1916.  War Pensions Act 1914-1916.  Australian Soldiers' Repatriation Fund Act 1916.  Military Service Referendum Act 1918.  <i>Daylight Saving Act 1916*</i>  Unlawful Association Act 1916-1917.  Wheat Storage Act 1917.  Daylight Saving Repeal Act 1917.  Australian Soldiers' Repatriation Act, 1917.</p>
(vii.)	<p>LIGHTHOUSES, LIGHTSHIPS, BEACONS AND BUOYS—</p> <p>Lighthouses Act 1911-1915.</p>
(viii.)	<p>ASTRONOMICAL AND METEOROLOGICAL OBSERVATIONS—</p> <p>Meteorology Act 1906.</p>
(ix.)	<p>QUARANTINE—</p> <p>Quarantine Act 1908-1915.</p>
(xi.)	<p>CENSUS AND STATISTICS—</p> <p>Census and Statistics Act 1905.  War Census Act 1915-1916.</p>
(xii.)	<p>CURRENCY, COINAGE, AND LEGAL TENDER—</p> <p>Coinage Act 1909.  Australian Notes Act 1910-1914.</p>
(xiii.)	<p>BANKING, OTHER THAN STATE BANKING, ETC.—</p> <p>Commonwealth Bank Act 1911-1914.</p>
(xiv.)	<p>INSURANCE—</p> <p>Life Assurance Companies Act 1905.  Marine Insurance Act 1909.</p>
(xvi.)	<p>BILLS OF EXCHANGE AND PROMISSORY NOTES—</p> <p>Bills of Exchange Act 1909-1912.</p>
(xviii.)	<p>COPYRIGHT, PATENTS, DESIGNS, AND TRADE MARKS—</p> <p>Customs Act 1901-1916 (s. 52 (a), 57).  Patents Act 1903-1909.  Trade Marks Act 1905-1912.  <i>Copyright Act 1905.*</i>  Copyright Act 1912.  Designs Act 1906-1912.  Patents, Trade Marks and Designs Act 1910.  Patents, Trade Marks and Designs Act 1914-1915.  Patents Act (Partial Suspension) Act 1916.</p>
(xix.)	<p>NATURALIZATION AND ALIENS—</p> <p>Naturalization Act 1903-1917.</p>
(xxiii.)	<p>INVALID AND OLD-AGE PENSIONS—</p> <p>Invalid and Old-age Pensions Act 1908-1917.</p>

\* Acts whose short titles are printed in italics with a \* have been repealed or have expired.

Section of Constitution.	Short Title of Commonwealth Act.*
51 (xxiv.)	SERVICE AND EXECUTION THROUGHOUT COMMONWEALTH OF PROCESS AND JUDGMENTS OF STATE COURTS— <i>Service and Execution of Process Act 1905.*</i> Service and Execution of Process Act 1901-1912.
(xxv.)	RECOGNITION OF STATE LAWS, RECORDS, ETC.— State Laws and Records Recognition Act 1901.
(xxvi.)	PEOPLE OF ANY RACE, OTHER THAN ABORIGINAL—SPECIAL LAWS— Pacific Island Labourers Act 1901-1906. Commonwealth Franchise Act 1902 (s. 4). Naturalization Act 1903-1917 (s. 5).
(xxvii.)	IMMIGRATION AND EMIGRATION— Immigration Act 1901-1912. Pacific Island Labourers Act 1901-1906. Contract Immigrants Act 1905. Emigration Act 1910.
(xxviii.)	INFLUX OF CRIMINALS— Immigration Act 1901-1912 (s. 3 (ga), (gb)).
(xxix.)	EXTERNAL AFFAIRS— Extradition Act 1903. High Commissioner Act 1909.
(xxx.)	RELATIONS WITH PACIFIC ISLANDS— Pacific Island Labourers Act 1901-1906.
(xxxi.)	ACQUISITION OF PROPERTY FOR PUBLIC PURPOSES— <i>Property for Public Purposes Acquisition Act 1901.*</i> <i>Seat of Government Act 1904.*</i> Lands Acquisition Act 1906-1916. Lands Acquisition Act 1912. Seat of Government Act 1908. Seat of Government Acceptance Act 1909. Seat of Government (Administration) Act 1910 (s. 10). Northern Territory (Administration) Act 1910. Defence Lands Purchase Act 1913. Purchase Telephone Lines Acquisition Act 1911.
(xxxii.)	CONTROL OF RAILWAYS FOR DEFENCE PURPOSES— Defence Act 1903-1917 (ss. 64-66, 80, 124). War Precautions Act 1914-1916 (s. 4 (1) (c)). Kalgoorlie to Port Augusta Railway Survey Act 1907. Commonwealth Railways Act 1917.
(xxxiv.)	RAILWAY CONSTRUCTION AND EXTENSION IN ANY STATE WITH THE CONSENT OF THAT STATE— Kalgoorlie to Port Augusta Railway Act 1911-1912. Commonwealth Railways Act 1917.
(xxxv.)	CONCILIATION AND ARBITRATION FOR THE PREVENTION AND SETTLEMENT OF INDUSTRIAL DISPUTES EXTENDING BEYOND THE LIMITS OF ANY ONE STATE— Commonwealth Conciliation and Arbitration Act 1904-1915.
(xxxix.)	MATTERS INCIDENTAL TO THE EXECUTION OF POWERS— Acts Interpretation Act 1901-1916. <i>Punishment of Offences Act 1901.*</i> Acts Interpretation Act 1904-1916. Amendments Incorporation Act 1905. Rules Publication Act 1903-1916. Commonwealth Public Service Act 1902-1917. Jury Exemption Act 1905. Royal Commissions Act 1902-1912. Evidence Act 1905. Commonwealth Salaries Act 1907. Excise Procedure Act 1907.

\* Acts whose short titles are printed in italics with a \* have been repealed or have expired.

Section of Constitution.	Short Title of Commonwealth Act.*
	THE STATES.
118	RECOGNITION OF STATE LAWS, RECORDS, ETC.— State Laws and Records Recognition Act 1901.
119	PROTECTION OF STATES FROM INVASION AND VIOLENCE— Defence Act 1903-1917 (s. 51).
	TERRITORIES.
122	GOVERNMENT OF TERRITORIES— Papua Act 1905. Wireless Telegraphy Act 1905-1915. Seat of Government Acceptance Act 1909. Patents Act 1903-1909 (s. 4a). Northern Territory Acceptance Act 1910. Seat of Government (Administration) Act 1910. Northern Territory (Administration) Act 1910. Pine Creek to Katherine River Railway Survey Act 1912. Pine Creek to Katherine River Railway Act 1913. Norfolk Island Act 1913. Jervis Bay Territory Acceptance Act 1915.
	MISCELLANEOUS.
125	SEAT OF GOVERNMENT— <i>Seat of Government Act 1904.*</i> Seat of Government Act 1908. Seat of Government Acceptance Act 1909. Seat of Government (Administration) Act 1910.
128	ALTERATION OF CONSTITUTION— Referendum (Constitution Alteration) Act 1906-1915. Constitution Alteration (Senate Elections) Act 1906. Constitution Alteration (State Debts) Act 1909. <i>Compulsory Voting Act 1915.*</i>

\* Acts whose short titles are printed in italics with a \* have been repealed or have expired.

## SECTION III.

### PHYSIOGRAPHY.

#### § 1. General Description of Australia.

1. **Geographical Position.**—The Australian Commonwealth, which includes the island continent of Australia proper and the island of Tasmania, is situated in the Southern Hemisphere, and comprises in all an area of about 2,974,581 square miles, the mainland alone containing about 2,948,366 square miles. Bounded on the west and east by the Indian and Pacific Oceans respectively, it lies between longitudes 113° 9' E. and 153° 39' E., while its northern and southern limits are the parallels of latitude 10° 41' S. and 39° 8' S., or, including Tasmania, 43° 39' S. On its north are the Timor and Arafura Seas and Torres Strait, on its south the Southern Ocean and Bass Strait.<sup>1</sup>

*Tropical and Temperate Regions.* Of the total area of Australia the lesser portion lies within the tropics. Assuming, as is usual, that the latitude of the Tropic of Capricorn is 23° 30' S.,<sup>2</sup> the areas within the tropical and temperate zones are approximately as follows:—

**AREAS OF TROPICAL AND TEMPERATE REGIONS  
OF STATES AND TERRITORY WITHIN TROPICS.**

Areas.	Queensland.	Western Australia.	Northern Territory.	Total.
	Sq. miles.	Sq. miles.	Sq. miles.	Sq. miles.
Within Tropical Zone     ...     ...	359,000	364,000	426,320	1,149,320
Within Temperate Zone     ...     ...	311,500	611,920	97,300	1,020,720
Ratio of Tropical part to whole State     ...	0.535	0.373	0.814	0.530
Ratio of Temperate part to whole State     ...	0.465	0.627	0.186	0.470

Thus the tropical part is roughly about one-half (0.530) of the three territories mentioned above, or about five-thirteenths of the whole Commonwealth (0.386). See hereafter Meteorology 3, page 57.

2. **Area of Australia compared with that of other Countries.**—That the area of Australia is greater than that of the United States of America, that it is four-fifths of that of Canada, that it is nearly one-fourth of the area of the whole of the British Empire, that it is nearly three-fourths of the whole area of Europe, that it is more than 25 times as large as any one of the following, viz., the United Kingdom, Hungary, Italy, the Transvaal, and Ecuador, are facts which are not always adequately realised. It is this great size, taken together with the fact of the limited population, that gives to the problems of Australian development their unique character, and its clear comprehension is essential in any attempt to understand those problems.

1. The extreme points are "Steep Point" on the west, "Cape Byron" on the east, "Cape York" on the north, "Wilson's Promontory" on the south, or, if Tasmania be included, "South East Cape." The limits, according to the 1903-4 edition of "A Statistical Account of Australia and New Zealand," p. 2, and, according to Volume XXV. of the "Encyclopædia Britannica," tenth edition, p. 787, are respectively 113° 5' E., 153° 16' E., 10° 39' S., and 39° 11' S., but these figures are obviously defective. A similar inaccuracy appears in the XI. edition of the Encyclopædia.

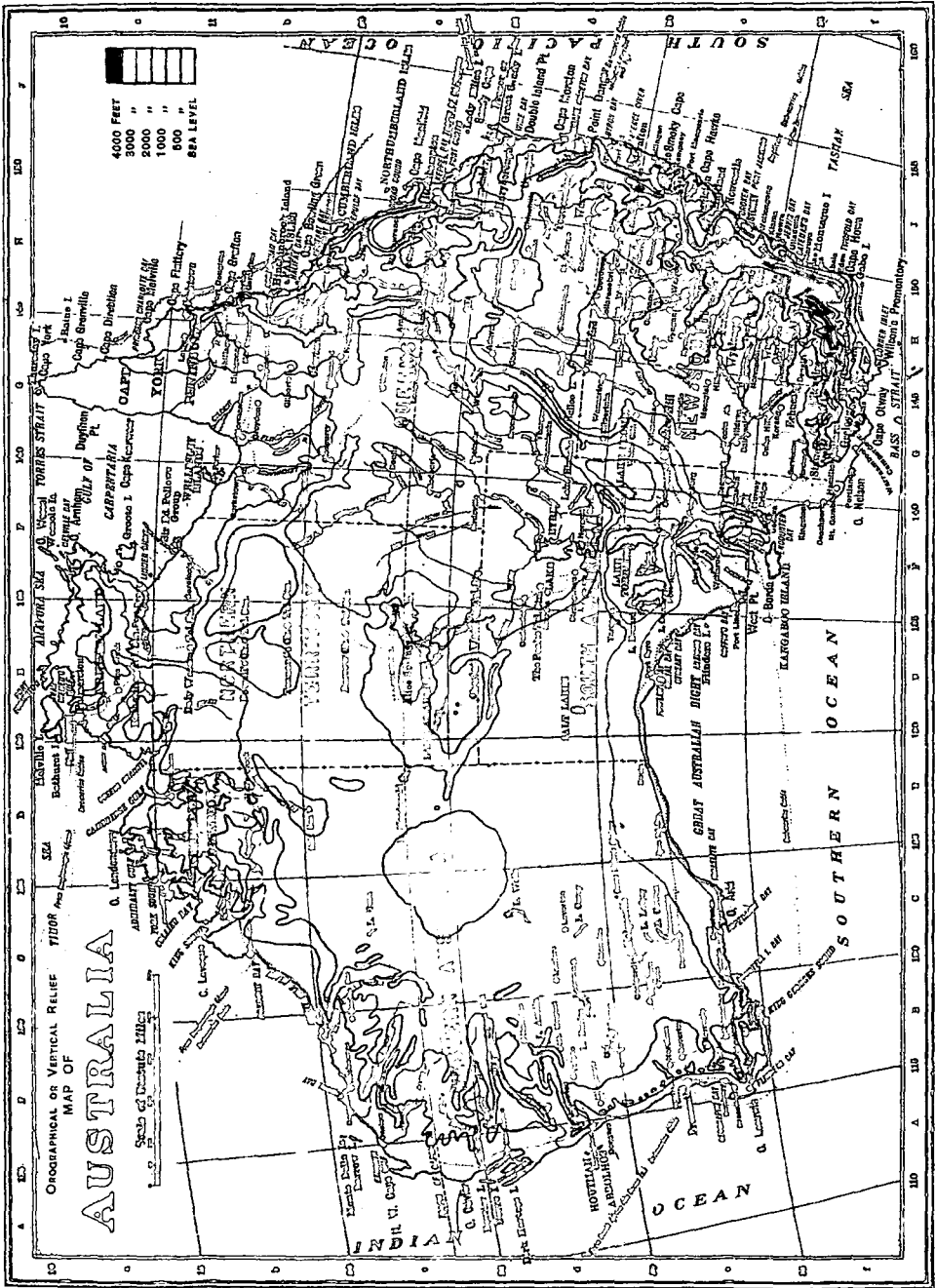
2. Its correct value for 1918 is 23° 26' 59.83", and it decreases about 0'.47 per annum.



The relative magnitudes may be appreciated by a reference to the following table, which shews how large Australia is compared with the countries referred to, or *vice versa*. Thus, to take line 1, we see that Europe is about  $1\frac{3}{4}$  times (1.29679) as large as Australia, or that Australia is about three-quarters (more accurately 0.77) of the area of Europe.

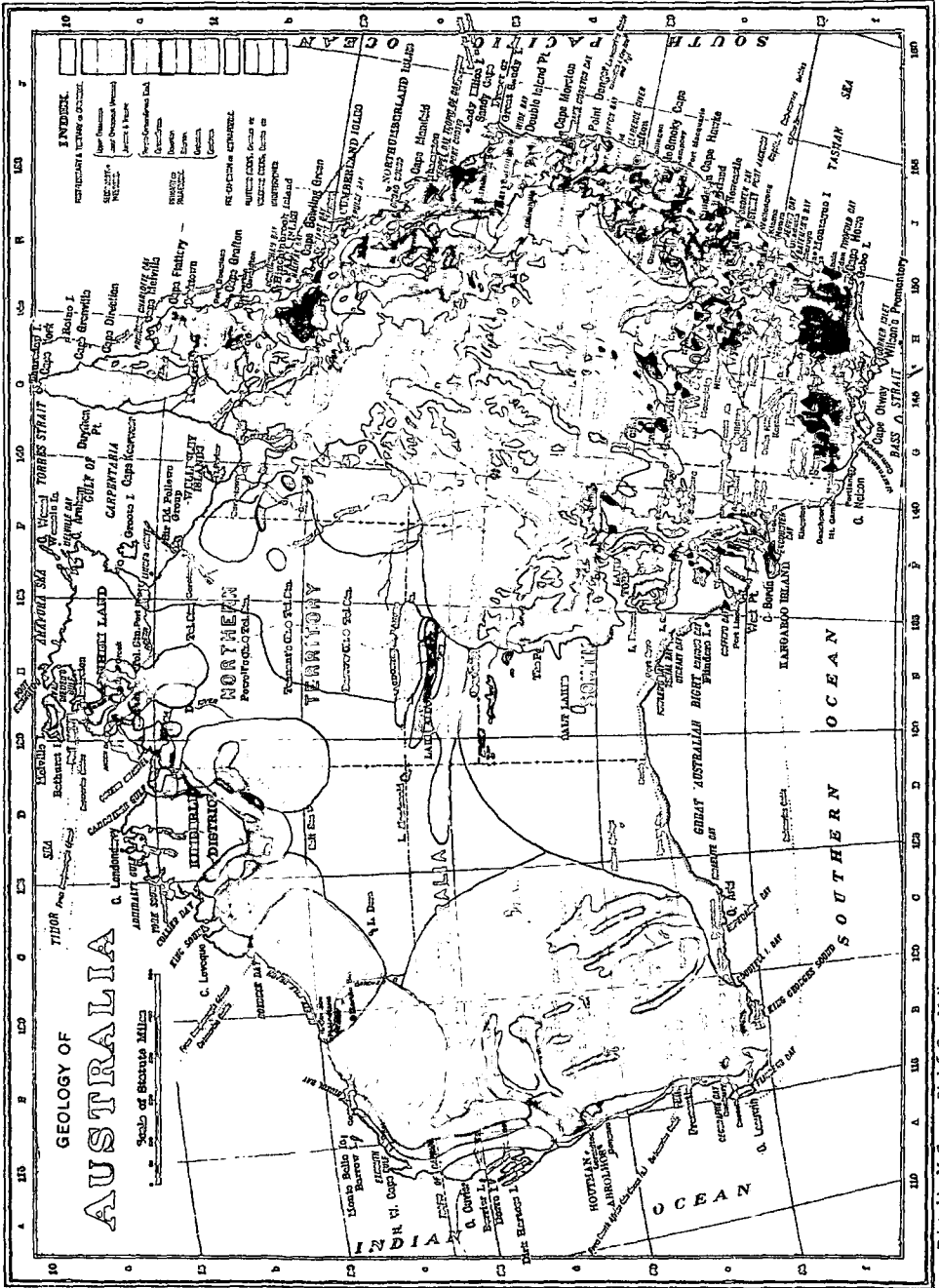
**SIZE OF AUSTRALIA IN COMPARISON WITH THAT OF OTHER COUNTRIES.**

Commonwealth of Australia				2,974,581 square miles.		
Country.				Area.	Australian Commonwealth in comparison with—	In comparison with Australian C <sup>o</sup> wealth.
<b>Continents—</b>				Sq. miles.		
Europe	...	...	...	3,857,411	0.77	1.29679
Asia	...	...	...	16,852,098	0.17	5.66537
Africa	...	...	...	12,236,834	0.24	4.11380
North and Central America and West Indies	...	...	...	8,566,278	0.35	2.87983
South America	...	...	...	7,446,201	0.40	2.50323
Australasia and Polynesia	...	...	...	3,462,366	0.86	1.16398
Total, exclusive of Arctic and Antarctic Conts.				52,421,188	0.06	17.62305
<b>Europe—</b>						
Russia (inclusive of Poland, Ciscaucasia & Finland)	...	...	...	2,122,998	1.40	0.71371
Austria-Hungary (incl. of Bosnia & Herzegovina)	...	...	...	261,259	11.39	0.08783
Germany	...	...	...	208,780	14.25	0.07018
France	...	...	...	207,054	14.37	0.06969
Spain	...	...	...	194,778	15.27	0.06548
Sweden	...	...	...	173,035	17.19	0.05817
Norway	...	...	...	124,643	23.86	0.04190
United Kingdom	...	...	...	121,633	24.45	0.04089
Italy	...	...	...	110,632	26.89	0.03719
Denmark (inclusive of Iceland)	...	...	...	55,338	53.73	0.01861
Rumania	...	...	...	53,489	55.61	0.01798
Bulgaria	...	...	...	43,305	68.69	0.01455
Greece	...	...	...	41,933	70.94	0.01409
Portugal	...	...	...	35,490	83.82	0.01193
Serbia	...	...	...	33,891	87.76	0.01139
Switzerland	...	...	...	15,976	186.22	0.00537
Netherlands	...	...	...	12,582	236.42	0.00423
Belgium	...	...	...	11,373	261.78	0.00382
Albania	...	...	...	11,317	262.84	0.00380
Turkey	...	...	...	10,882	273.34	0.00366
Montenegro	...	...	...	5,603	530.88	0.00188
Luxemburg	...	...	...	998	2941.18	0.00034
Andorra	...	...	...	191	15573.72	0.00006
Malta	...	...	...	118	25423.76	0.00004
Liechtenstein	...	...	...	65	45793.55	0.00002
San Marino	...	...	...	38	78278.45	0.00001
Monaco	...	...	...	8	371822.63	...
Gibraltar	...	...	...	2	1487290.50	...
Total, Europe				3,857,411	0.77	1.29679
<b>Asia—</b>						
Russia (inclus. of Transcaucasia, Siberia, Steppes, Transcaspia, Turkestan and inland waters)	...	...	...	6,641,587	0.45	2.23278
China and Dependencies...	...	...	...	3,913,560	0.76	1.31567
British India...	...	...	...	1,093,074	2.72	0.36747
Independent Arabia	...	...	...	1,000,000	2.97	0.33618
Feudatory Indian States...	...	...	...	709,555	4.19	0.23854
Turkey (including Samos)	...	...	...	699,522	4.25	0.23516
Persia	...	...	...	628,000	4.74	0.21112
Dutch East Indies	...	...	...	583,211	5.10	0.19606
Japan (and Dependencies)	...	...	...	262,331	11.34	0.08819



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Country.	Area.	Australian Commonwealth in comparison with—	In com- parison with Australian C'wealth.
ASIA (continued)—	Sq. Miles.		
Afghanistan ... ..	250,000	11.90	0.08405
Siam ... ..	195,000	15.25	0.06555
Philippine Islands (inclusive of Sulu Archipelago)	120,000	23.60	0.04034
Laos ... ..	111,940	26.57	0.03763
Bokhara ... ..	83,000	35.83	0.02790
Omán ... ..	82,000	36.27	0.02757
British Borneo and Sarawak ... ..	73,106	40.68	0.02457
Cambodia ... ..	67,724	43.92	0.02277
Annam ... ..	61,718	48.20	0.02075
Nepál ... ..	54,000	55.10	0.01815
Tonking ... ..	46,223	64.35	0.01554
Federated Malay States ... ..	27,506	108.14	0.00925
Ceylon ... ..	25,332	117.42	0.00852
Malay Protectorate (including Johore)	24,970	119.13	0.00839
Khiva ... ..	24,000	123.94	0.00807
Cochin China ... ..	21,988	135.28	0.00739
Bhután ... ..	20,000	148.73	0.00672
Aden and Dependencies ... ..	9,005	330.32	0.00303
Timor, etc. (Portuguese Indian Archipelago)	7,330	406.50	0.00246
Brunei ... ..	4,000	743.64	0.00134
Cyprus ... ..	3,584	833.33	0.00120
Kiauchau (Neutral Zone) ... ..	2,500	1189.83	0.00084
Goa, Damao, and Diu ... ..	1,638	1818.18	0.00055
Straits Settlements ... ..	1,600	1851.85	0.00054
Sokotra ... ..	1,382	2152.22	0.00046
Hong Kong and Dependencies ... ..	391	7607.62	0.00013
Kwang Chan Wan ... ..	386	7706.17	0.00013
Wei-hai-wei ... ..	285	10623.50	0.00009
Bahrein Islands ... ..	250	11898.32	0.00008
Kiauchau (German) ... ..	200	14872.90	0.00007
French India (Pondicherry, etc.) ... ..	196	15176.43	0.00007
Macao, etc. ... ..	4	743643.25	---
Total, Asia ... ..	16,852,098	0.17	5.66537
Africa—			
French Sahara ... ..	1,544,000	1.93	0.51907
French Equatorial Africa ... ..	1,003,600	2.96	0.33739
Sudan ... ..	984,520	3.02	0.33098
Belgian Congo ... ..	909,654	3.27	0.30582
French Military District of the Niger	534,124	5.57	0.17956
Angola ... ..	484,800	6.14	0.16298
Union of South Africa ... ..	473,075	6.29	0.15904
Rhodesia ... ..	438,575	6.78	0.14744
Portuguese East Africa ... ..	426,712	6.97	0.14345
Tripoli and Benghezi ... ..	406,000	7.33	0.13649
German East Africa ... ..	384,180	7.74	0.12915
Abyssinia ... ..	350,000	8.50	0.11766
Egypt ... ..	350,000	8.50	0.11766
Mauretania ... ..	344,967	8.62	0.11597
Algeria (including Algerian Sahara) ... ..	343,500	8.66	0.11548
Nigeria and Protectorate ... ..	336,000	8.85	0.11296
German South-west Africa ... ..	322,450	9.23	0.10840
Senegambia and Niger ... ..	302,136	9.84	0.10157
Bechuanaland Protectorate ... ..	275,000	10.82	0.09245
British East Africa Protectorate ... ..	246,822	12.05	0.08298
Madagascar ... ..	226,016	13.16	0.07598
Morocco ... ..	219,000	13.58	0.07362
Kamerun ... ..	191,130	15.56	0.06425

Country.	Area.	Australian Commonw'lth in comparison with—	In com- parison with Australian C'wealth.
AFRICA (continued)—		Sq. miles.	
Italian Somaliland ... ..	139,480	21.84	0.04687
Ivory Coast ... ..	125,538	23.69	0.04220
Uganda Protectorate ... ..	109,119	27.26	0.03668
French Guinea ... ..	92,249	32.25	0.03101
Gold Coast Protectorate (with North. Territories)	80,000	37.18	0.02689
Senegal ... ..	74,012	40.19	0.02488
Rio de Oro, etc. ... ..	73,000	40.75	0.02454
British Somaliland ... ..	68,000	43.74	0.02286
Tunis ... ..	50,000	59.49	0.01681
French Somali Coast ... ..	46,320	64.21	0.01557
Eritrea ... ..	45,800	64.95	0.01540
Liberia ... ..	40,000	74.36	0.01345
Nyassaland Protectorate... ..	39,573	75.17	0.01330
Dahomey ... ..	37,527	79.26	0.01261
Togoland ... ..	33,700	88.26	0.01133
Sierra Leone and Protectorate	31,000	95.95	0.01042
Portuguese Guinea ... ..	13,940	213.22	0.00469
Spanish Guinea (Rio Muni, etc.)	12,000	247.88	0.00403
Basutoland ... ..	11,716	253.89	0.00393
Swaziland ... ..	6,536	455.10	0.00219
Gambia and Protectorate	4,504	660.43	0.00151
Cape Verde Islands ... ..	1,480	2000.00	0.00050
Zanzibar ... ..	1,020	2941.18	0.00034
Réunion ... ..	965	3082.47	0.00032
Fernando Po, etc. ... ..	814	3654.28	0.00027
Mauritius and Dependencies	809	3676.86	0.00027
Comoro Islands ... ..	694	4286.14	0.00023
St. Thomas and Prince Islands	360	8262.73	0.00012
Seychelles ... ..	156	19067.82	0.00005
Mayotte, etc.... ..	143	20801.27	0.00005
Spanish North and West Africa	87	34190.59	0.00003
St. Helena ... ..	47	63288.95	0.00002
Ascension ... ..	34	87487.65	0.00001
Total, Africa ... ..	12,236,834	0.24	4.11380
North and Central America and West Indies—			
Canada ... ..	3,729,665	0.80	1.25385
United States (exclusive of Alaska, etc.)	2,973,890	1.00	0.99976
Mexico ... ..	785,881	3.78	0.26420
Alaska ... ..	590,884	5.03	0.19864
Newfoundland and Labrador	162,734	18.28	0.05471
Nicaragua ... ..	49,200	60.46	0.01654
Guatemala ... ..	48,290	61.61	0.01623
* Greenland ... ..	46,740	63.65	0.01571
Honduras ... ..	44,275	67.18	0.01488
Cuba ... ..	44,164	67.35	0.01485
Costa Rica ... ..	23,000	129.32	0.00773
San Domingo... ..	18,045	164.74	0.00607
Haiti ... ..	10,204	291.55	0.00343
British Honduras ... ..	8,598	345.96	0.00289
Salvador ... ..	13,176	225.76	0.00443
Bahamas ... ..	4,404	675.43	0.00148
Jamaica ... ..	4,207	707.05	0.00141
Porto Rico ... ..	3,606	824.90	0.00121
Trinidad and Tobago ... ..	1,868	1592.39	0.00063
Leeward Islands ... ..	715	4160.25	0.00024
Guadeloupe and Dependencies	688	4323.52	0.00023
Windward Islands ... ..	527	5644.37	0.00018

\* Danish colony only. Total area has been estimated as between 827,000 and 850,000 square miles.

Country.	Area.	Australian Commonwealth in comparison with—	In com- parison with Australian C'wealth.
<b>N. &amp; C. AMERICA &amp; W. INDIES (continued)—</b>	<b>Sq. miles.</b>		
Curacao and Dependencies ...	403	7381.09	0.00014
Martinique ...	378	7869.26	0.00013
Turks and Caicos Islands ...	224	13279.38	0.00008
Barbados ...	166	17925.18	0.00005
Danish West Indies ...	142	20947.75	0.00005
St. Pierre and Miquelon ...	96	30985.22	0.00003
Cayman Islands ...	89	33422.26	0.00003
Bermudas ...	19	156556.89	...
<b>Total, N. and C. America and W. Indies ...</b>	<b>8,566,278</b>	<b>0.35</b>	<b>2.87983</b>
<b>South America—</b>			
Brazil (inclusive of Acre)... ..	3,364,564	0.88	1.13110
Argentine Republic ... ..	1,153,119	2.58	0.38766
Peru ... ..	722,461	4.12	0.24288
Bolivia ... ..	514,155	5.79	0.17285
Colombia (exclusive of Panama) ...	440,846	6.75	0.14820
Venezuela ... ..	398,594	7.46	0.13400
Chile ... ..	289,829	10.26	0.09744
Paraguay ... ..	165,000	18.03	0.05546
Ecuador ... ..	116,000	25.64	0.03900
British Guiana ... ..	89,480	33.24	0.03008
Uruguay ... ..	72,153	41.22	0.02426
Dutch Guiana ... ..	46,060	64.60	0.01548
French Guiana ... ..	34,060	87.33	0.01145
Panama ... ..	32,380	91.86	0.01088
Falkland Islands ... ..	6,500	456.62	0.00219
South Georgia ... ..	1,000	2974.58	0.00034
<b>Total, South America ... ..</b>	<b>7,446,201</b>	<b>0.40</b>	<b>2.50328</b>
<b>Australasia and Polynesia—</b>			
Commonwealth of Australia ... ..	2,974,581	1.00	1.00000
Dutch New Guinea ... ..	151,789	19.60	0.05103
New Zealand and Dependencies ...	104,751	28.39	0.03522
Papua ... ..	90,540	32.85	0.03044
Kaiser Wilhelm Land ... ..	70,000	42.50	0.02353
Bismarck Archipelago ... ..	20,000	148.73	0.00672
British Solomon Islands ... ..	14,573	204.12	0.00490
New Caledonia and Dependencies ...	8,548	347.99	0.00287
Fiji ... ..	7,435	400.08	0.00250
Hawaii ... ..	6,449	460.83	0.00217
German Solomon Islands, etc. ...	5,160	576.46	0.00173
New Hebrides ... ..	5,100	583.25	0.00171
French Establishments in Oceania ...	1,520	1960.78	0.00051
German Samoa ... ..	1,000	2974.58	0.00034
Tonga ... ..	390	7627.13	0.00013
Guam ... ..	210	14164.67	0.00007
Gilbert and Ellice Islands ... ..	208	14300.87	0.00007
Samoa (U.S.A. part) ... ..	102	29162.56	0.00003
Norfolk Island ... ..	10	297458.10	...
<b>Total, Australasia and Polynesia ...</b>	<b>3,462,366</b>	<b>0.86</b>	<b>1.16398</b>
<b>British Empire... ..</b>	<b>12,755,743</b>	<b>0.23</b>	<b>4.28825</b>

It should be noted that in the table above the figures quoted for areas refer to conditions prevailing prior to the outbreak of war.

**3. Relative Size of Political Subdivisions.**—As already stated, Australia consists of six States and the Northern and Federal Territories. The areas of these, in relation to one another and to the total of Australia, are shewn in the following table:—

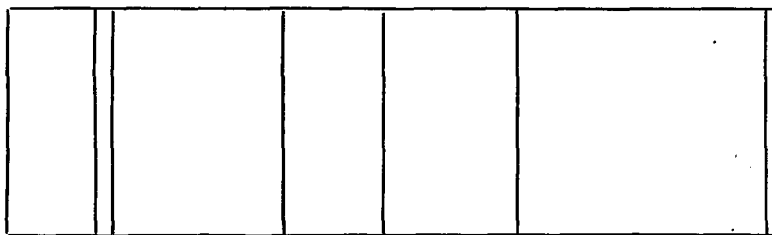
**RELATIVE SIZE OF STATES, TERRITORIES, AND COMMONWEALTH.**

State or Territory.	Area.	Ratio which the Area of each State and Territory bears to that of other States, Territories and Commonwealth.							
		N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	N. Ter.	C'wlth.
	Sq. miles.								
New South Wales	309,460	1.000	3.522	0.462	0.814	0.317	11.806	0.591	0.104
Victoria ...	87,884	0.284	1.000	0.131	0.231	0.090	3.352	0.168	0.030
Queensland ...	670,500	2.166	7.629	1.000	1.764	0.687	25.577	1.280	0.225
South Australia	380,070	1.228	4.325	0.567	1.000	0.389	14.498	0.726	0.128
West. Australia	975,920	3.153	11.105	1.455	2.568	1.000	37.228	1.964	0.328
Tasmania ...	26,215	0.085	0.298	0.039	0.069	0.027	1.000	0.050	0.009
North. Territory	523,620	1.691	5.958	0.781	1.378	0.537	19.974	1.000	0.176
Federal Territory	912	0.003	0.010	0.001	0.003	0.001	0.034	0.002	0.000 <sup>1</sup>
Commonwealth	2,974,581	9.610	33.847	4.436	7.827	3.048	113.469	5.681	1.000

1. The correct decimal is 0.0003.

Thus, looking at the top line, New South Wales is seen to be over three-and-a-half times as large as Victoria (3.522) and less than one-half the size of Queensland (0.462); or again, looking at the bottom line, the Commonwealth is shewn to be more than nine-and-a-half times as large as New South Wales (9.610), and nearly thirty-four times as large as Victoria (33.847).

These relative magnitudes are shewn in the small diagram below. It may be added that Papua (or British New Guinea), with its area of 90,540 square miles, is 0.030 of the area of the Commonwealth. The comparatively small-size of the Federal Territory prevents its being shewn in this diagram.



% on total ...	N.S.W. 10	V. 3	Qld. 22	S.A. 13	N.T. 18	W.A. 33	Tas. 1
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**4. Coastal Configuration.**—There are no striking features in the configuration of the coast; the most remarkable indentations are the Gulf of Carpentaria on the north and the Great Australian Bight on the south. The York Peninsula on the extreme north is the only other remarkable feature in the outline. In Year Book No. 1, an enumeration of the features of the coast-line of Australia was given (see pp. 60 to 68).

(i.) *Coast-line.* The lengths of coast-line, exclusive of minor indentations, both of each State and of the whole continent, are shewn in the following table:—

## SQUARE MILES OF TERRITORY PER MILE OF COAST LINE.

## STATES, TERRITORY, AND CONTINENT.

State.	Coast-line.	Area ÷ Coast-line.	State.	Coast-line.	Area ÷ Coast-line.
	Miles.	Sq. miles.		Miles.	Sq. miles.
New South Wales <sup>1</sup>	700	443	South Australia ...	1,540	247
Victoria ...	680	129	Western Australia	4,350	224
Queensland ...	3,000	223	Continent <sup>2</sup> ...	11,310	261
Northern Territory	1,040	503	Tasmania ...	900	29

1. Including Federal Territory.

2. Area 2,948,366 square miles.

For the entire Commonwealth this gives a coast-line of 12,210 miles, and an average of 244 square miles for one mile of coast line. According to Strelbitski, Europe has only 75 square miles of area to each mile of coast line, and, according to recent figures, England and Wales have only one-third of this, viz., 25 square miles.

(ii.) *Historical Significance of Coastal Names.* It is interesting to trace the voyages of some of the early navigators by the names bestowed by them on various coastal features—thus Dutch names are found on various points of the Western Australian coast, in Nuyt's Archipelago, in the Northern Territory and in the Gulf of Carpentaria; Captain Cook can be followed along the coasts of New South Wales and Queensland; Flinders' track is easily recognised from Sydney southwards, as far as Cape Catastrophe, by the numerous Lincolnshire names bestowed by him; and the French navigators of the end of the eighteenth and the beginning of the nineteenth century have left their names all along the Western Australian, South Australian, and Tasmanian coasts.

5. *Geographical Features of Australia.*—In each preceding issue of this Year Book, fairly complete information has been given concerning some special geographical element. Thus No. 1 Year Book, pp. 60-68, contains an enumeration of Coastal features, No. 2, pp. 66-67, deals with Hydrology, No. 3, pp. 59-72, with Orography, No. 4, pp. 59-82, with the Lakes of Australia, No. 5, pp. 51-80, with the Islands of Australia, No. 6, pp. 55-66, with the Mineral Springs of Australia, and No. 7, pp. 56-58, with the Salient Features in the Geological History of Australia, with special reference to changes of climate. This practically completes the description of the ordinary physical features. An orographical or vertical relief map of Australia will be found on p. 49.

## § 2. The Fauna of Australia.

An authoritative article describing in some detail the principal features of the Fauna of Australia was given in Year Books No. 1 (see pp. 103 to 109) and No. 2 (see pp. 111 to 117), while a synoptical statement appeared in No. 3 (see pp. 73 to 76). Considerations of space will, however, preclude the inclusion in this issue of more than a passing reference to the subject.

## § 3. The Flora of Australia.

In Year Books No. 1 (see pp. 109 to 114) and No. 2 (see pp. 117 to 122) a fairly complete though brief account was given of the Flora of Australia, and in Year Book No. 3 similar information in a greatly condensed form will be found on pp. 76 to 78. Space in this issue will not permit of more than a mere reference to preceding volumes.



A special article dealing with Australian fodder plants, contributed by J. H. Maiden, Esq., F.L.S., Government Botanist of New South Wales, and Director of the Botanic Gardens, Sydney, appeared in Official Year Book No. VI., pp. 1190-6. A special article on the grasses and saltbushes of Australia, contributed by E. Breakwell, B.A., B.Sc., Agrostologist at the Botanic Gardens, Sydney, appeared in Year Book No. 9, pp. 84-90. Year Book No. 10 contained two special articles, one dealing with Australian eucalyptus timbers contributed by R. T. Baker, F.L.S., appeared on pp. 85 to 92, and one by H. G. Smith, F.C.S., dealing with the chemical products of Australian eucalypts appeared on pp. 92-8.

#### § 4. Seismology in Australia.

A brief statement regarding the position of seismology and seismological record in Australia appears in Year Book No. 4, pp. 82 and 83.

#### § 5. The Geology of Australia.

1. **General.**—Independent and authoritative sketches of the geology of each State were given in Year Books No. 1 (see pp. 73 to 103) and No. 2 (see pp. 78 to 111). Want of space has precluded the insertion of these sketches in the present issue of the Year Book, and it has not been considered possible to give anything like a sufficient account of the geology of Australia by presenting here a mere condensation of these sketches. Reference must, therefore, be made to either Year Book No. 1 or No. 2, *ut supra*.

2. **Geological Map of Australia.**—The map of the Geology of Australia on page 50, shews the geographical distribution of the more important geological systems and formations.

3. **The Building Stones of Australia.**—Independent and authoritative descriptions of the building stones of each State (with the exception of Queensland) will be found in Official Year Book No. 9, pp. 446-466. It is not proposed to repeat the information in this issue.

#### § 6. Climate and Meteorology of Australia.<sup>1</sup>

1. **Introductory.**—In preceding Year Books some account was given of the history of Australian meteorology, including reference to the development of magnetic observations and the equipment for the determination of various climatological records. (See Year Book No. 3, pp. 79, 80.) In Year Book No. 4, pp. 84 and 87, will be found a short sketch of the creation and organisation of the Commonwealth Bureau of Meteorology and a resumé of the subjects dealt with at the Meteorological Conference of 1907. Space will not permit of the inclusion of this matter in the present issue.

2. **Meteorological Publications.**—The following publications are issued daily from the Central Meteorological Bureau, viz.:—(i.) Weather charts. (ii.) Rainfall maps. (iii.) Bulletins, Victorian and Interstate, shewing pressure, temperature, wind, rain, cloud extent, and weather. Similar publications are also issued from the divisional offices in each of the State Capitals.

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1. Prepared from data supplied by the Commonwealth Meteorologist, H. A. Hunt, Esquire, F.R. Met.Soc.

The Bulletins of Climatology are as follow:—No. 1.—A general discussion of the climate and meteorology of Australia, illustrated by one map and diagrams. No. 2.—A discussion of the rainfall over Australia during the ten years (1897-1906) compared with the normal, illustrated by one map. No. 3.—Notes and statistics of the remarkable flood rains over south-eastern Australia during the winter of 1909, illustrated by five maps and diagrams. No. 4.—A discussion of the monthly and seasonal rainfall over Australia, illustrated by one map and diagram. No. 5.—An investigation into the possibility of forecasting the approximate winter rainfall for Northern Victoria, illustrated by two diagrams. No. 6.—The physiography of the Federal Territory at Canberra, illustrated by a relief map and 21 plates. No. 7.—On the climate of the Yass-Canberra district, illustrated by one map. No. 8.—Physiography of Eastern Australia, with 28 text illustrations. No. 9.—The climate of Australia, with charts and diagrams, prepared for the Federal Handbook of Australia. No. 10.—Relation between cirrus directions as observed in Melbourne and the approach of the various storm systems affecting Victoria, illustrated by a number of charts. No. 11.—The climatic control of Australian production, with 43 illustrations. No. 12.—A graphical method of shewing the daily weather and especially cloud types, with two graphs. No. 13.—Initial investigations in the upper air of Australia, with 35 illustrations. No. 14.—The control of settlement by humidity and temperature, with 21 charts and diagrams.

Commencing with January 1910, the "Australian Monthly Weather Report," containing statistical records from representative selected stations; with rain maps and diagrams, etc., is being published. Complete rainfall and other climatological data are published in annual volumes of meteorological statistics for each State separately.

The first text book of Australian meteorology, "Climate and Weather of Australia," was published in 1913.

**3. General Description of Australia.**—In the general description of Australia, page 47, it is pointed out that a considerable portion (0.530) of three divisions of the Australian Commonwealth is north of the tropic of Capricorn, that is to say, within the States of Queensland and Western Australia, and the Northern Territory, no less than 1,149,320<sup>1</sup> square miles belong to the tropical zone, and 1,020,720 to the temperate zone. The whole area of the Commonwealth within the temperate zone, however, is 1,825,261<sup>2</sup> square miles, thus the tropical part is about 0.386, or about five-thirteenths of the whole, or the "temperate" region is half as large again as the "tropical" (more accurately 1.591). By reason of its insular geographical position, and the absence of striking physical features, Australia is, on the whole, less subject to extremes of weather than are regions of similar area in other parts of the globe; and latitude for latitude Australia is, on the whole, more temperate.

The altitudes of the surface of Australia range up to a little over 7300 feet, hence its climate embraces a great many features, from the characteristically tropical to what is essentially alpine, a fact indicated in some measure by the name Australian Alps given to the southern portion of the great Dividing Range.

While on the coast the rainfall is often abundant and the atmosphere moist, in some portions of the interior the rainfall is very limited, and the atmosphere dry. The distribution of forest, as might be expected, and its climatic influence, is consequently very variable. In the interior there are on the one hand fine belts of trees, on the other there are large areas which are treeless, and where the air is hot and parched in summer. Again, on the coast, even as far south as latitude 35°, the vegetation is tropical in its luxuriance, and also somewhat so in character. Climatologically, therefore, Australia may be said to present a great variety of features. The various climatological characteristics will be referred to in detail.

1. In the article "Australia" in the Encyclopædia Britannica, Vol. II., p. 946 (XI. Edition), this area is given as 1,145,000 square miles.

2. Given as 1,801,700 square miles in the work above quoted, where, however, the statistics are said "to refer only to the continental States of the Federation, not to Tasmania."

**4. Meteorological Divisions.**—The Commonwealth Meteorologist has divided Australia, for climatological and meteorological purposes, into five divisions. The boundaries between these may be thus defined:—(a) Between divisions I. and II., the boundary between South and Western Australia, viz., the 129th meridian of east longitude; (b) between divisions II. and III., starting at the Gulf of Carpentaria, along the Norman River to Normanton, thence a straight line to Wilcannia on the Darling River, New South Wales; (c) between divisions II. and IV., from Wilcannia along the Darling River to its junction with the Murray; (d) between divisions II. and V., from the junction of the Darling and Murray Rivers, along the latter to Encounter Bay; (e) between divisions III. and IV., starting at Wilcannia, along the Darling, Barwon, and Dumaresq Rivers to the Great Dividing Range, and along that range and along the watershed between the Clarence and Richmond Rivers to Evans Head on the east coast of Australia; (f) between divisions IV. and V., from the junction of the Darling and Murray Rivers along the latter to its junction with the Murrumbidgee, along the Murrumbidgee to the Tumut River, and along the Tumut River to Tumut, thence a straight line to Cape Howe; (g) division V. includes Tasmania.

The population included within these boundaries at the Census of the 3rd April, 1911, was approximately as follows:—

Division	I.	II.	III.	IV.	V.
Population	282,000	429,000	607,000	1,540,000	1,597,000

In these divisions the order in which the capitals occur is as follows:—(i.) Perth, (ii.) Adelaide, (iii.) Brisbane, (iv.) Sydney, (v.) Melbourne, (vi.) Hobart; and for that reason the climatological and meteorological statistics will be set forth in the indicated order in this publication.

*Special Climatological Stations.* The latitudes, longitudes, and altitudes of special stations, the climatological features of which are graphically represented herein-after, are as follows:—

#### SPECIAL CLIMATOLOGICAL STATIONS.

Locality.	Height above Sea Level.	Latitude.		Longitude.		Locality.	Height above Sea Level.	Latitude.		Longitude.	
		S.	E.	S.	E.			S.	E.	S.	E.
Perth ...	197	deg. min.	deg. min.	deg. min.	deg. min.	Darwin ...	97	deg. min.	deg. min.	deg. min.	deg. min.
Adelaide ...	140	31 57	115 50	138 35		Daly Waters ...	691	12 28	130 51	16 16	133 23
Brisbane ...	137	34 56	153 2	153 2		Alice Springs ...	1926	23 38	133 37	23 38	133 37
Sydney ...	146	27 28	151 12	151 12		Dubbo ...	870	32 18	148 35	32 18	148 35
Melbourne ...	115	33 52	144 58	144 58		Laverton ...	1530	28 40	122 23	28 40	122 23
Hobart ...	177	37 49	147 20	147 20		Coolgardie ...	1402	30 57	121 10	30 57	121 10

**5. Temperatures.**—In respect of Australian temperatures generally it may be pointed out that the isotherm for 70° Fahrenheit extends in South America and South Africa as far south as latitude 33°, while in Australia it reaches only as far south as latitude 30°, thus shewing that, on the whole, Australia has a more temperate climate when compared latitude for latitude with other places in the Southern Hemisphere.

The comparison is even more favourable when the Northern Hemisphere is included therein, for in the United States the 70° isotherm extends in several of the western States as far north as latitude 41°. In Europe the same isotherm reaches almost to the southern shores of Spain, passing, however, afterwards along the northern shores of Africa till it reaches the Red Sea, when it bends northward along the eastern shore of the Mediterranean till it reaches Syria. In Asia nearly the whole of the land area south of latitude 40° N. has a higher isothermal value than 70°.

The extreme range of shade temperatures in summer and winter in a very large part of Australia amounts to probably only 81°. In Siberia, in Asia, the similar range is no less than 171°, and in North America 153°, or approximately double the Australian range.

Along the northern shores of the Australian continent the temperatures are very equable. At Darwin, for example, the difference in the means for the hottest and coldest months is only  $8.3^{\circ}$ , and the extreme readings for the year, that is, the highest maximum in the hottest month and the lowest reading in the coldest month, shew a difference of under  $50^{\circ}$ .

Coming southward the extreme range of temperature increases gradually on the coast, and in a more pronounced way inland.

The detailed temperature results for the several capitals of the States of Australia are shewn in the Climatological Tables hereinafter.

(i.) *Hottest and Coldest Parts.* A comparison of the temperatures recorded at coast and inland stations shews that, in Australia as in other continents, the range increases with increasing distance from the coast.

In the interior of Australia, and during exceptionally dry summers, the temperature occasionally reaches or exceeds  $120^{\circ}$  in the shade, and during the dry winters the major portion of the country to the south of the tropics is subject to ground frosts. An exact knowledge of temperature disposition cannot be determined until the interior becomes more settled, but from data procurable, it would appear that the hottest area of the continent is situated in the northern part of Western Australia about the Marble Bar and Nullagine goldfields, where the maximum shade temperature during the summer sometimes exceeds  $100^{\circ}$  for days, and even weeks, continuously. The coldest part of the Commonwealth is the extreme south-east of New South Wales and extreme east of Victoria, namely, the region of the Australian Alps. Here, the temperature seldom, if ever, reaches  $100^{\circ}$ , even in the hottest of seasons.

In Tasmania, although occasionally hot winds may cross the Straits and cause the temperature to rise to  $100^{\circ}$  in the low-lying parts, the island as a whole enjoys a most moderate and equable range of temperature throughout the year.

(ii.) *Monthly Maximum and Minimum Temperatures.* The mean monthly maximum and minimum temperatures can be best shewn by means of graphs, which exhibit the nature of the fluctuation of each for the entire year. In the diagram (on page 67) for nine representative places in Australia, the upper heavy curves shew the mean maximum, the lower heavy curves the mean minimum temperatures based upon daily observations. On the same diagram the thin curves shew the relative humidities (see next paragraph).

**6. Relative Humidity.**—Next after temperature the degree of humidity may be regarded as of great importance as an element of climate; and the characteristic differences of relative humidity between the various capitals of Australia call for special remark. For six representative places the variations of humidity are shewn on the graph on page 67, which gives results based upon daily observations of the dry and wet bulb thermometers. Hitherto difficulties have been experienced in many parts of Australia in obtaining satisfactory observations for a continuous period of any length. For this reason it has been thought expedient to refer to the record of humidity at first order stations only, where the results are thoroughly reliable. Throughout, the degree of humidity given will be what is known as *relative humidity*, that is, the percentage of aqueous vapour actually existing to the total possible if the atmosphere were saturated.

The detailed humidity results for the several State capitals are given in the Climatological Tables hereinafter. From these, it is seen that, in respect of relative humidity, Sydney and Hobart have the first place, while Brisbane, Melbourne, Perth, and Adelaide follow in the order stated, Adelaide being the driest. The graphs on page 67 shew the annual variations in humidity. It will be observed that the *relative humidity* is ordinarily but not invariably great when the temperature is low.

**7. Evaporation.**—The rate and quantity of evaporation in any territory is influenced by the prevailing temperature, and by atmospheric humidity, pressure and movement. In Australia the question is of perhaps more than ordinary importance; since in its drier regions water has often to be conserved in "tanks"<sup>1</sup> and dams. The magnitude of the

1. In Australia artificial storage ponds or reservoirs are called "tanks."

economic loss by evaporation will be appreciated from the records on pages 68 and 78 to 83, which shew that the yearly amount varies from about 33 inches at Hobart to 95 inches at Alice Springs in the centre of the Continent.

(i.) *Monthly Evaporation Curves.* The curves shewing the mean monthly evaporation in various parts of the Commonwealth will disclose how characteristically different are the amounts for the several months in different localities. The evaporation for characteristic places is shewn on the diagram shewing also rainfalls (see page 68).

(ii.) *Loss by Evaporation.* In the interior of Australia the possible evaporation is greater than the actual rainfall. Since, therefore, the loss by evaporation depends largely on the exposed area, tanks and dams so designed that the surface shall be a minimum are advantageous. Similarly, the more protected from the direct rays of the sun and from winds, by means of suitable tree planting, the less will be the loss by evaporation: these matters are of more than ordinary concern in the drier districts of Australia.

8. *Rainfall.*—As even a casual reference to climatological maps, indicating the distribution of rainfall and prevailing direction of wind, would clearly shew, the rainfall of any region is determined mainly by the direction and route of the prevailing winds, by the varying temperatures of the earth's surface over which they blow, and by the physiographical features generally.

Australia lies within the zone of the south-east trade and prevailing westerly winds. The southern limit of the south-east trade strikes the eastern shores at about 30° south latitude. Hence, we find that, with very few exceptions, the heaviest rains of the Australian continent are precipitated along the Pacific slopes to the north of that latitude, the varying quantities being more or less regulated by the differences in elevation of the shores and of the chain of mountains, upon which the rain-laden winds blow, from the New South Wales northern border to Thursday Island. The converse effect is exemplified on the north-west coast of Western Australia from the summer south-east trade winds. Here the prevailing winds, blowing from the interior of the continent instead of from the ocean, result in the lightest coastal rain in Australia.

The westerly winds, which skirt the southern shores, are responsible for the very reliable, although generally light, rains enjoyed by the south-western portion of Western Australia, by the south-eastern agricultural areas of South Australia, by a great part of Victoria, and by the whole of Tasmania.

(i.) *Factors determining Distribution and Intensity of Rainfall.*

(ii.) *Time of Rainfall.*

In preceding Year Books (see No. 6, pp. 72, 73, 74) some notes were given of the various factors governing the distribution, intensity and period of Australian rainfall.

(iii.) *Wettest and Driest Regions.* The wettest known part of Australia is on the north-east coast of Queensland, between Port Douglas and Cardwell, where three stations situated on, or adjacent to, the Johnstone and Russell Rivers have an average annual rainfall of between 148 and 166 inches. The maximum and minimum falls there are:—Goondi, 241.53 in 1894 and 67.88 inches in 1915, or a range of 165.29 inches; Innisfail, 211.24 in 1894 and 69.87 inches in 1902, or a range of 141.37 inches; Harvey's Creek, 238.45 in 1901 and 80.47 inches in 1902, or a range of 157.98 inches.

On four occasions more than 200 inches have been recorded at Goondi, the last of these being in 1910, when 204.82 inches were registered. The record at this station covers a period of 30 years.

Harvey's Creek in the shorter period of 20 years has twice exceeded 200 inches, the total for 1910 being 201.28 inches.

The driest known part of the continent is about the Lake Eyre district in South Australia (the only part of the continent below sea level), where the annual average is but 5 inches, and where the fall rarely exceeds 10 inches for the twelve months.

The inland districts of Western Australia have until recent years been regarded as the driest part of Australia, but authentic observations taken during the past decade at settled districts in the east of that State shew that the annual average is from 10 to 12 inches.

(iv.) *Quantities and Distribution of Rainfall generally.* The departure from the normal rainfall increases greatly and progressively from the southern to the northern shores of the continent, and similarly also at all parts of the continent subject to capricious monsoonal rains, as the comparisons hereunder will shew. The general distribution is best seen from the map on page 73, shewing the areas subject to average annual rainfalls lying between certain limits. The areas enjoying varying quantities of rainfall determined from the latest available information are shewn in the following table:—

DISTRIBUTION OF AVERAGE RAINFALL.

Average Annual Rainfall.	N.S.W.	Victoria.	Queensland.	South Aust.	Northern Territory.	Western Aust.	Tasmania.	Commonwealth.
	sqr. mls.	sqr. mls.	sqr. mls.	sqr. mls.	sqr. mls.	sqr. mls.	sqr. mls.	sqr. mls.
Under 10 inches	44,997	nil	91,012	317,600	138,190	513,653	nil	1,105,452
10—15 "	77,268	19,912	87,489	33,405	141,570	232,815	nil	592,459
15—20 "	57,639	12,626	112,738	14,190	62,920	89,922	937	350,972
20—30 "	77,202	29,317	213,779	13,827	93,470	95,404	7,559	530,558
30—40 "	30,700	14,029	69,880	984	40,690	40,750	4,588	201,621
Over 40 "	22,566	12,000	95,602	64	46,780	3,376	10,101	190,489
Total area ...	310,372	87,884	670,500	380,070	523,620	975,920	26,215	2,974,581

\* Over an area of 3030 square miles no records are available.

Referring first to the capital cities, the complete records of which are given on the following page, it is seen that Sydney with a normal rainfall of 48.33 inches occupies the chief place, Brisbane, Perth, Melbourne, Hobart and Adelaide following in that order, Adelaide with 21.05 inches being the driest. The extreme range from the wettest to the driest year is greatest at Brisbane (72.09 inches) and least at Adelaide (19.48 inches).

In order to shew how the rainfall is distributed throughout the year in various parts of the continent, the figures of representative towns have been selected. (See map on page 74.) Darwin, typical of the Northern Territory, shews that in that region nearly the whole of the rainfall occurs in the summer months, while little or nothing falls in the middle of the year. The figures for Perth, as representing the south-western part of the continent, are the reverse, for while the summer months are dry, the winter ones are very wet. In Melbourne and Hobart the rain is fairly well distributed throughout the twelve months, with a maximum in October in the former, and in November in the latter. The records at Alice Springs and Daly Waters indicate that in the central parts of Australia the wettest months are in the summer and autumn. In Queensland, as in the Northern Territory, the heaviest rains fall in the summer months, but good averages are also maintained during the other seasons.

On the coast of New South Wales, the first six months of the year are the wettest, with slight excesses in April and July; the averages during the last six months are fair and moderately uniform. In general it may be said that one-fourth of the area of the continent, principally in the eastern and northern parts, enjoys an annual average rainfall of from 20 to 50 inches, the remaining three-fourths receiving generally from about 10 to 15 inches.

(v.) *Curves of Rainfall and Evaporation.* The relative amounts of rainfall and evaporation at different times through the year are best seen by referring to the graphs for a number of characteristic places. (See page 68.) It will be recognised at once how large is the evaporation when water is fully exposed to the direct rays of the sun, and to wind.

(vi.) *Tables of Rainfall.* The table of rainfall for a long period of years for each of the various Australian capitals affords information as to the variability of the fall in successive years, and the list of the more remarkable falls furnishes information as to what may be expected on particular occasions.

THE CLIMATE AND METEOROLOGY OF AUSTRALIA.  
RAINFALL AT THE AUSTRALIAN CAPITALS, 1840 to 1917.

Year.	PERTH.			ADELAIDE.			BRISBANE.			SYDNEY.			MELBOURNE.			HOBART.		
	Amount.	No. of Days.	10 Years' Means.	Amount.	No. of Days.	10 Years' Means.	Amount.	No. of Days.	10 Years' Means.	Amount.	No. of Days.	10 Years' Means.	Amount.	No. of Days.	10 Years' Means.	Amount.	No. of Days.	10 Years' Means.
1840	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
1	...	...	...	24.23	99	...	29.32	...	...	58.52	150	...	22.57	...	...	...	...	...
2	...	...	...	17.96	93	...	49.31	...	...	76.31	142	...	30.18	...	...	13.95	74	...
3	...	...	...	20.32	122	...	28.81	...	...	48.32	138	...	31.16	...	...	23.60	88	...
4	...	...	...	17.19	104	...	51.67	...	...	62.78	168	...	21.54	...	...	13.43	87	...
5	...	...	...	16.88	136	...	63.20	...	...	70.66	156	...	30.74	...	...	26.25	94	...
6	...	...	...	18.83	125	...	39.09	...	...	62.01	133	...	23.93	...	...	16.68	76	...
7	...	...	...	26.89	114	...	31.41	...	41.83	43.83	139	...	30.53	...	...	21.96	99	...
8	...	...	...	27.61	109	...	...	...	(7 yr.)	42.81	142	...	30.18	...	...	13.86	89	...
9	...	...	...	19.74	114	21.07	42.59	...	...	59.17	155	58.27	33.15	28.22	...	23.62	115	19.24
1850	...	...	...	25.44	110	(9 yr.)	...	...	...	21.49	140	(9 yr.)	44.25	28.22	...	33.52	103	(8 yr.)
1	...	...	...	19.56	84	...	...	...	...	44.88	157	...	26.98	...	...	14.51	70	...
2	...	...	...	30.86	128	...	...	...	...	35.14	137	...	...	...	...	17.98	107	...
3	...	...	...	27.44	118	...	...	...	...	43.79	143	...	...	...	...	23.62	119	...
4	...	...	...	27.08	128	...	...	...	...	46.12	130	...	...	...	...	14.52	113	...
5	...	...	...	15.35	105	...	...	...	...	29.29	136	...	...	...	...	30.54	109	...
6	...	...	...	23.15	124	...	...	...	...	52.86	138	...	...	...	...	18.25	131	...
7	...	...	...	24.93	118	...	...	...	...	43.31	116	...	28.21	...	...	22.73	152	...
8	...	...	...	22.15	105	...	...	...	...	50.95	135	...	29.76	134	...	17.14	113	...
9	...	...	...	21.55	107	23.75	43.00	...	...	39.60	129	40.75	28.90	138	...	33.07	129	22.59
1860	...	...	...	14.85	95	...	35.00	...	...	49.01	137	...	25.01	158	...	23.31	159	...
1	...	...	...	19.67	119	...	54.63	144	...	82.76	180	...	21.82	156	...	21.05	142	...
2	...	...	...	24.04	147	...	69.45	155	...	59.36	157	...	25.38	133	...	28.19	167	...
3	...	...	...	21.85	119	...	28.27	98	...	23.99	108	...	23.08	139	...	21.72	148	...
4	...	...	...	23.68	145	...	68.83	146	...	47.08	152	...	36.42	165	...	40.67	163	...
5	...	...	...	19.75	121	...	47.00	114	...	69.12	185	...	27.40	144	...	28.11	142	...
6	...	...	...	15.51	108	...	24.11	52	...	36.15	140	...	15.94	119	...	23.07	146	...
7	...	...	...	20.11	116	...	51.18	142	...	36.91	156	...	22.41	107	...	23.55	127	...
8	...	...	...	19.05	112	...	61.04	112	...	59.56	140	...	25.79	133	...	22.27	139	...
9	...	...	...	19.99	113	19.85	35.98	110	47.55	42.98	161	49.99	18.27	120	24.47	18.08	112	25.00
1870	...	...	...	14.74	117	...	54.39	114	...	48.00	150	...	24.58	129	...	23.87	131	...
1	...	...	...	23.84	119	...	79.06	154	...	64.47	179	...	33.77	129	...	27.53	123	...
2	...	...	...	23.25	137	...	45.45	119	...	52.27	141	...	30.17	125	...	18.25	131	...
3	...	...	...	22.66	146	...	49.22	131	...	37.12	161	...	32.52	136	...	31.76	160	...
4	...	...	...	21.00	139	...	62.02	138	...	73.40	176	...	25.61	134	...	23.43	157	...
5	...	...	...	17.23	127	...	38.71	135	...	63.60	173	...	28.10	134	...	24.09	138	...
6	...	...	...	29.21	157	...	67.03	162	...	46.25	153	...	32.67	158	...	23.25	162	...
7	28.73	100	...	13.43	110	...	53.42	130	...	45.69	156	...	24.04	134	...	23.63	173	...
8	20.48	103	...	24.95	135	...	30.28	119	...	59.66	147	...	24.10	134	...	29.62	165	...
9	39.72	143	29.64	22.08	112	21.24	56.33	134	53.59	49.77	129	54.03	25.36	116	28.11	29.76	183	25.24
1880	41.34	106	(3 yr.)	20.69	130	...	67.30	157	...	63.19	167	...	19.28	127	...	21.07	210	...
1	31.79	116	...	22.48	142	...	49.12	134	...	29.51	142	...	28.48	147	...	...	...	...
2	24.78	101	...	18.02	135	...	29.39	117	...	40.99	163	...	24.08	134	...	...	...	...
3	35.68	109	...	15.70	134	...	42.62	121	...	42.28	112	...	22.40	131	...	30.69	...	...
4	39.65	122	...	26.76	161	...	32.22	114	...	46.92	157	...	23.71	130	...	24.05	161	...
5	31.96	92	...	18.74	138	...	43.49	136	...	44.04	159	...	25.85	128	...	21.55	171	...
6	33.44	110	...	15.89	133	...	26.85	112	...	39.91	145	...	26.94	123	...	28.29	176	...
7	28.90	89	...	14.42	141	...	53.66	152	...	39.43	152	...	24.00	128	...	21.39	189	...
8	37.52	105	...	25.70	164	...	81.54	242	...	60.16	190	...	32.39	153	...	24.21	174	...
9	27.83	117	33.29	14.55	131	19.30	33.08	143	45.93	23.01	132	42.94	19.42	123	24.66	18.45	151	33.71
1890	39.96	123	...	30.87	143	...	49.36	155	...	57.16	186	...	27.14	125	...	30.80	180	(6 yr.)
1	46.73	126	...	25.78	139	...	73.02	162	...	81.42	184	...	24.24	140	...	27.51	173	...
2	30.33	93	...	14.01	113	...	41.68	143	...	55.30	200	...	26.73	126	...	23.25	160	...
3	31.23	122	...	21.53	137	...	64.98	146	...	69.26	189	...	24.96	124	...	18.62	190	...
4	40.12	145	...	21.49	129	...	88.26	147	...	49.90	209	...	26.80	140	...	27.46	146	...
5	23.72	103	...	20.78	134	...	44.02	143	...	38.23	188	...	22.60	138	...	27.39	141	...
6	33.01	123	...	21.28	130	...	59.11	105	...	31.86	170	...	17.04	131	...	25.40	121	...
7	31.60	103	...	15.17	121	...	44.97	121	...	42.40	157	...	25.16	124	...	21.61	135	...
8	31.76	108	...	15.42	119	...	42.53	115	...	42.52	136	...	25.85	117	...	20.45	153	...
9	32.40	118	33.55	20.75	116	20.71	60.06	131	56.80	43.17	143	51.12	15.61	102	23.61	20.40	164	24.29
1900	36.61	107	...	18.84	119	...	38.85	141	...	55.90	174	...	28.87	116	...	20.68	170	...
1	36.75	123	...	21.63	133	...	34.41	110	...	66.54	170	...	28.09	139	...	19.14	135	...
2	27.06	93	...	18.01	124	...	38.48	110	...	40.10	149	...	27.45	113	...	25.11	149	...
3	35.69	140	...	16.02	123	...	16.17	87	...	43.07	180	...	23.08	102	...	21.85	150	...
4	34.35	125	...	25.47	134	...	49.27	136	...	38.62	173	...	28.43	130	...	25.86	139	...
5	34.61	116	...	20.31	117	...	33.23	124	...	45.93	158	...	29.72	128	...	22.41	139	...
6	32.37	121	...	22.28	131	...	36.76	108	...	35.03	145	...	25.64	129	...	32.09	168	...
7	40.12	132	...	26.51	127	...	42.85	125	...	31.89	160	...	22.29	114	...	23.31	155	...
8	30.52	106	34.05	17.78	125	...	31.46	119	...	31.32	132	...	22.26	102	...	25.92	166	...
9	39.11	107	...	24.56	125	21.15	44.01	125	36.55	45.65	167	43.41	17.72	130	25.36	16.50	148	23.29
1910	37.02	135	...	27.69	138	...	34.06	111	...	32.45	177	...	25.86	171	...	27.29	170	...
1	23.38	108	...	24.62	116	...	49.00	133	...	46.91	160	...	24.61	167	...	25.22	205	...
2	27.85	123	...	15.99	127	...	35.21	128	...	50.24	155	...	36.61	168	...	26.78	193	...
3	38.28	141	...	19.57	116	...	41.30	114	...	47.51	172	...	20.37	157	...	23.14	181	...
4	23.21	128	...	18.16	102	...	40.81	115	...	57.70	141	...	21.17	157	...	19.36	165	...
5	43.61	164	...	10.39	91	...	33.99	141	...	55.42	149	...	18.57	129	...	15.42	154	...
6	35.16	128	...	11.39	117	...	25.66	93	...	34.83	117	...	20.95	167	...	20.91	196	...
7	45.64	146	...	28.16	142	...	52.80	136	...	44.91	161	...	38.04	170	...	43.39	203	...
Aver. No. of Yrs.	...	...	33.53	...	...	21.05	...	...	46.13	...	...	48.33	...	...	26.17	...	...	23.72
			(42)			(79)			(68)			(78)			(74)			(75)

NOTE.—The above average Rainfall figures for Brisbane, Sydney, and Melbourne differ slightly from the mean annual falls given in the Climatological Tables on pp. 78-83, which are for a less number of years.

9. Remarkable Falls of Rain.—The following are the more remarkable falls of rain in the States of New South Wales, Queensland, Western Australia, Northern Territory, Victoria, and Tasmania, which have occurred within a period of twenty-four hours:—

#### HEAVY RAINFALLS, NEW SOUTH WALES, UP TO 1917, INCLUSIVE.

Name of Town or Locality.	Date.	Amnt.	Name of Town or Locality.	Date.	Amnt.
		ins.			ins.
Anthony ...	28 Mar., 1887	17.14	Major's Creek ...	14 Feb., 1898	12.32
" ...	15 Jan., 1890	13.13	Marrickville ...	9 Mar., 1913	10.40
Araluen ...	15 Feb., 1898	13.36	Morpeth ...	9 " 1893	21.52
Berry ...	13 Jan., 1911	12.05	Mount Kembla ...	13 Jan., 1911	18.25
Billambil ...	14 Mar., 1894	12.94	Mt. Pleasant ...	24 Mar., 1914	10.30
Bomaderry ...	12 Jan., 1911	13.03	Nepean Tunnel ...	14 Feb., 1898	12.30
Broger's Creek ...	14 Feb., 1898	20.05	Nowra ...	13 Jan., 1911	13.00
" ...	19 July, 1910	12.22	Padstow Park ...	9 Mar., 1913	10.64
" ...	13 Jan., 1911	20.83	Prospect ...	28 May, 1889	12.37
Bulli Mountain ...	13 Feb., 1898	17.14	Raleigh Central ...	10 Nov., 1917	13.20
Camden Haven ...	22 Jan., 1895	12.23	Richmond ...	28 May, 1889	12.18
Castle Hill ...	28 May, 1889	13.49	Rosemount ...	23 Mar., 1914	12.62
Colombo Lyttleton ...	5 Mar., 1893	12.17	Rooty Hill ...	27 May, 1889	11.85
Comboyne ...	18 May, 1914	10.68	Taree ...	28 Feb., 1892	12.24
Condong ...	27 Mar., 1887	18.66	Terara ...	26 " 1873	12.57
Cordeaux River ...	14 Feb., 1898	22.58	The Hill (Shell Harb.) ...	24 Mar., 1914	12.00
" ...	13 Jan., 1911	14.52	Tomago ...	9 Mar., 1893	13.76
Dapto West ...	14 Feb., 1898	12.05	Tongarra Farm ...	14 Feb., 1898	15.12
Dunheved ...	28 May, 1889	12.40	Towamba ...	5 Mar., 1893	20.00
Dunoon ...	9 Nov., 1917	10.02	Tweed River Heads ...	9 Nov., 1917	13.50
Holy Flat ...	12 Mar., 1887	12.00	Sherwood ...	17 June, 1914	10.00
" ...	28 Feb., 1892	12.24	Stockyard Mt. ...	24 Mar., 1914	10.72
Jamberoo ...	23 Mar., 1914	10.22	South Head ...		
" ...	24 " "	11.28	(near Sydney) ...	29 Apr., 1841	20.12
Katoomba ...	7 Apr., 1913	10.50	" ...	16 Oct., 1844	20.41
Kembla Heights ...	13 Jan., 1911	17.46	Unanderra " ...	24 Mar., 1914	11.68
Leonfield ...	9 Mar., 1893	14.53	Urunga ...	9 Nov., 1917	10.29
Madden's Creek ...	13 Jan., 1911	18.68	Wollongong ...	24 Mar., 1914	12.50
Maitland W. ...	9 Mar., 1893	14.79			

#### HEAVY RAINFALLS, QUEENSLAND, UP TO 1917, INCLUSIVE.

Name of Town or Locality.	Date.	Amnt.	Name of Town or Locality.	Date.	Amnt.
		ins.			ins.
Allomba (Cairns) ...	30 Jan., 1913	13.50	Burnett Head ...		
Anglesey ...	26 Dec., 1909	18.20	(Bundaberg) ...	16 Jan., 1913	15.22
" ...	10 Feb., 1915	12.00	Burpengary ...	10 Feb., 1915	11.11
Atherton (Cairns) ...	31 Jan., 1913	16.69	Bustard Head ...	17 Jan., 1913	14.93
Ayr ...	20 Sep., 1890	14.58	Cairns ...	11 Feb., 1889	14.74
Babinda (Cairns) ...	31 Jan., 1913	12.79	" ...	21 Apr., " "	12.40
" ...	1 Feb., 1913	20.51	" ...	5 " 1891	14.08
" ...	24 Jan., 1916	22.30	" ...	11 Feb., 1911	15.17
" ...	25 " 1916	13.45	" ...	2 Apr., " "	20.16
Banyan (Cardwell) ...	31 " 1913	13.79	" ...	31 Jan., 1913	13.94
Barrine (Cairns) ...	31 " 1913	13.34	" ...	24 " 1916	12.28
Batheaston ...	27 Dec., 1916	10.00	Calliope ...	9 Feb., 1915	12.09
Bloomsbury ...	14 Feb., 1893	17.40	Cape Grafton ...	5 Mar., 1896	13.37
" ...	10 Jan., 1901	16.62	Cardwell ...	30 Dec., 1889	12.00
Bowen ...	13 Feb., 1893	14.65	" ...	23 Mar., 1890	12.00
Boynedale ...	9 " 1915	11.20	" ...	18 " 1904	18.24
Bracewell ...	9 " 1915	11.59	" ...	3 Apr., 1911	12.84
Brisbane ...	21 Jan., 1887	18.31	Clare ...	26 Jan., 1896	15.30
Bromby Park (Bowen) ...	14 Feb., 1893	13.28	Clermont ...	28 Dec., 1916	12.28
Brookfield ...	14 Mar., 1908	14.95	Coen ...	17 Feb., 1914	12.03
Buderim Mountain ...	11 Jan., 1898	26.20	Collaroy ...	30 Jan., 1896	14.25
Bundaberg ...	16 " 1913	16.94	" ...	28 Dec., 1916	12.79
Burketown ...	15 " 1891	13.58	Cooktown ...	22 Jan., 1903	12.49
" ...	12 Mar., 1903	14.52	" ...	23 " 1914	13.98



## HEAVY RAINFALLS, QUEENSLAND—Continued.

Name of Town or Locality.	Date.	Amnt.	Name of Town or Locality.	Date.	Amnt.
		ins.			ins.
Cooran ...	1 Feb., 1893	13.62	Halifax ...	5 Feb., 1899	15.37
" ...	26 Dec., 1908	14.08	" ...	6 Jan., 1901	15.68
Cooroy ...	9 June, 1893	13.60	" ...	8 Apr., 1912	12.75
" ...	10 Jan., 1898	13.50	Hambledon Mill ...	13 Jan., 1909	13.80
Crohamhurst			" "	2 " 1911	18.61
(Blackall Range)	2 Feb., 1893	35.71	" "	10 Feb., "	13.97
" "	9 June, "	13.31	" "	30 Mar., "	13.04
" "	9 Jan., 1898	19.55	" "	31 " "	14.95
" "	6 Mar. "	16.01	" "	1 Apr., "	19.62
" "	26 Dec., 1909	13.85	" "	30 Jan., 1913	17.32
" "	10 Feb., 1915	12.98	Harvey Creek ...	8 Mar., 1899	17.72
Crow's Nest ...	2 Aug., 1908	11.17	" "	25 Jan., 1900	12.53
Croydon ...	29 Jan., 1908	15.00	" "	25 May, 1901	14.00
Cryna (Beaudesert) ...	21 " 1887	14.00	" "	14 Mar., 1903	12.10
Dungeness ...	16 Mar., 1893	22.17	" "	11 Jan., 1905	16.96
" "	17 Apr., 1894	14.00	" "	28 " 1906	12.29
Dunira ...	9 Jan., 1898	18.45	" "	14 " 1909	14.40
" ...	6 Mar., "	15.95	" "	3 " 1911	27.75
Eddington(Cloncurry)	23 Jan., 1891	10.33	" "	11 Feb., "	12.88
Emscote Farm ...	10 Feb., 1915	13.22	" "	1 Apr., "	13.61
Emu Park ...	18 Jan., 1913	12.75	" "	2 " "	16.46
Enoggera Railway ...	14 Mar., 1908	12.14	" "	31 Jan., 1913	24.72
Ernest Junction ...	" "	13.00	" "	24 " 1916	13.17
Fairymead Plantation			Houghton Valley ...	26 Jan., 1896	18.10
(Bundaberg)	16 Jan., 1913	15.32	Herberton ...	31 Jan., 1913	14.00
Flat Top Island ...	22 Dec., 1909	12.96	Hillcrest (Mooloolah)	26 Dec., 1909	13.35
Floraville ...	6 Jan., 1897	10.79	Holmwood (Woodf'd)	2 Feb., 1893	16.19
" ...	11 Mar., 1903	12.86	" "	10 Jan., 1898	12.40
Flying Fish Point ...	7 Apr., 1912	16.06	Homebush ...	3 Feb., "	12.04
" "	31 Jan., 1913	16.10	Howard ...	15 Jan., 1905	19.55
Gatcombe Head			Huntley ...	27 Dec., 1916	18.94
(Gladstone) ...	18 Jan., 1913	12.88	Ingham ...	18 Jan., 1894	12.60
Gin Gin ...	16 " 1905	13.61	" ...	6 " 1901	13.59
" ...	16 " 1913	12.27	" ...	25 Dec., 1903	12.30
Gladstone ...	18 Feb., 1888	12.37	Inkerman ...	21 Sep., 1890	12.93
" ...	31 Jan., 1893	14.62	Inneshowen		
" ...	4 Feb., 1911	18.83	(Johnstone River)	30 Dec., 1889	14.01
" ...	9 " 1915	10.10	Innisfail (formerly		
Glen Boughton ...	5 Apr., 1894	18.50	Geraldton) ...	11 Feb., 1889	17.13
" "	31 Jan., 1913	14.92	" "	31 Dec., "	12.45
" "	24 " 1916	14.02	" "	6 Apr., 1894	16.02
Glen Prairie ...	18 Apr., 1904	12.18	" "	18 " 1899	13.20
Gold Creek Reservoir	14 Mar., 1908	12.50	" "	24 Jan., 1900	15.22
Goldsborough (Cairns)	31 Jan., 1913	19.92	" "	29 Dec., 1903	21.22
" "	1 Feb., 1913	12.22	" "	11 Feb., 1911	14.48
Goodwood(Bund'berg)	16 Jan., 1913	13.07	" "	1 Apr., 1911	12.35
Goondi Mill (Innisfail)	6 Apr., 1894	15.69	" "	2 " "	15.00
" "	18 Apr., 1899	14.78	" "	7 " 1912	20.50
" "	24 Jan., 1900	13.30	" "	8 " "	12.15
" "	29 Dec., 1903	17.83	" "	31 Jan., 1913	20.91
" "	10 Feb., 1911	17.68	Invicta (Kolan R.) ...	16 Jan., 1913	14.58
" "	31 Mar., "	12.38	Isis Junction ...	6 Mar., 1898	13.60
" "	1 Apr., "	13.60	Kamerunga (Cairns)	20 Jan., 1892	13.61
" "	6 Apr., 1912	15.55	" "	6 Apr., 1894	14.04
Goondi ...	30 Jan., 1913	24.10	" "	5 " 1895	12.31
Granada (formerly			" "	11 Feb., 1911	13.07
Donaldson) ...	27 Jan., 1891	11.29	" "	1 Apr., "	14.20
" "	8 " 1911	13.50	" "	2 " "	21.00
" "	9 " "	14.30	" "	31 Jan., 1913	16.00

## HEAVY RAINFALLS, QUEENSLAND—Continued.

Name of Town or Locality.	Date.	Amnt.	Name of Town or Locality.	Date.	Amnt.
		ins.			ins.
Kulara (Cairns) ...	31 Jan., 1913	12.69	Nerang ...	15 June 1892	12.35
Kuranda (Cairns) ...	6 Mar., 1899	14.12	North Kolan		
" " ...	20 Apr., 1903	14.16	(Bundaberg) ...	6 Jan., 1913	12.90
" " ...	14 Jan., 1909	12.37	North Pine ...	16 Feb., 1893	14.97
" " ...	11 Feb., 1911	16.30	Nundah ...	14 Mar., 1908	12.00
" " ...	17 Mar., "	15.10	Oxenford ...	14 Mar., 1908	15.65
" " ...	31 " "	18.60	Palmwoods ...	4 Feb., 1893	12.30
" " ...	1 Apr., "	24.30	" " ...	10 Jan., 1898	15.85
" " ...	2 " "	28.80	" " ...	7 Mar., 1898	13.02
" " ...	31 Jan., 1913	16.34	" " ...	25 Dec., 1909	17.75
Lake Nash ...	10 Jan., 1895	10.25	Peacheater ...	26 " "	14.91
" " ...	20 Mar., 1901	10.02	Pialba (Maryborough) ...	16 Jan., 1913	17.22
Landsborough ...	2 Feb., 1893	15.15	Pittsworth ...	11 Mar., 1890	14.68
" " ...	9 June, "	12.80	Plane Creek (Mackay) ...	26 Feb., 1913	27.73
" " ...	26 Dec., 1909	14.00	Point Archer ...	23 Jan., 1914	13.47
Low Island ...	10 Mar., 1904	15.07	Port Douglas ...	5 Mar., 1887	13.00
" " ...	31 " 1911	14.70	" " ...	10 " 1904	16.34
" " ...	1 Apr., "	15.30	" " ...	11 Jan., 1905	14.68
Lucinda ...	17 Feb., 1906	13.35	" " ...	17 Mar., 1911	16.10
" " ...	10 Mar., 1906	14.60	" " ...	1 Apr., "	31.53
Lyndon (via Brixton) ...	3 " 1917	17.00*	Ravenswood ...	24 Mar., 1890	17.00
Lytton ...	21 Jan., 1887	12.85	Redcliffe ...	21 Jan., 1887	14.00
Mackay ...	23 Dec., 1909	13.96	" " ...	16 Feb., 1893	17.35
Sugar Experimental			Reid River ...	2 Feb., 1917	11.15
Farm, Mackay ...	23 Dec., 1909	12.00	Rosedale ...	6 Mar., 1898	12.60
Macnade Mill ...	18 Jan., 1894	12.56	" " ...	16 Jan., 1913	18.90
" " ...	17 Apr., "	14.26	Sandgate ...	16 Feb., 1893	14.03
" " ...	5 Feb., 1899	15.20	Somerset ...	23 Jan., 1903	12.02
" " ...	6 Jan., 1901	23.33	St. Helens (Mackay) ...	24 Feb., 1888	12.00
" " ...	7 Mar., 1914	12.44	St. Lawrence ...	17 Feb., 1888	12.10
" " ...	4 " 1915	22.00	" " ...	30 Jan., 1896	15.00
Maleny ...	26 Dec., 1909	14.76	Tewantin ...	30 Mar., 1904	12.30
Mapleton ...	14 Mar., 1908	14.29	The Hollow (Mackay) ...	23 Feb., 1888	15.12
" " ...	26 Dec., 1909	15.72	Thornborough ...	20 Apr., 1903	18.07
" " ...	10 Feb., 1915	12.75	Townsville ...	24 Jan., 1892	19.20
Marlborough ...	17 " 1888	14.24	" " ...	28 Dec., 1903	15.00
Milton ...	14 Mar., 1908	12.24	Victoria Mill ...	6 Jan., 1901	16.67
" " ...	9 Feb., 1915	10.15	Walsh River ...	1 Apr., 1911	13.70
Mirani ...	12 Jan., 1901	16.59	Woodford ...	2 Feb., 1893	14.93
Miriam Vale (B'd'berg) ...	17 " 1913	15.80	Woodlands (Yeppoon) ...	25 Mar., 1890	14.25
" " ...	9 Feb., 1915	10.22	" " ...	31 Jan., 1893	23.07
Mooloolah ...	13 Mar., 1892	21.53	" " ...	9 Feb., 1896	13.97
" " ...	2 Feb., 1893	19.11	" " ...	7 Jan., 1898	14.50
" " ...	6 Mar., 1898	14.43	Woody Island ...	16 " 1913	12.66
Mount Crosby ...	14 Mar., 1908	14.00	Woombye ...	26 Dec., 1909	13.42
Mount Cuthbert ...	8 Jan., 1911	18.00	Wootha ...	10 Feb., 1915	15.93
Mount Molloy ...	31 Mar., 1911	20.00	Yandina ...	1 " 1893	20.08
" " ...	1 Apr., "	20.00	" " ...	9 June, "	12.70
" " ...	2 " "	20.00	" " ...	9 Jan., 1898	19.25
Mount Mee ...	10 Feb., 1915	12.00	" " ...	7 Mar., "	13.52
Mourilyan ...	14 Jan., 1909	13.00	" " ...	28 Dec., 1909	15.80
" " ...	3 " 1911	12.70	Yarrabah ...	11 Feb., 1911	12.00
" " ...	11 Feb., "	17.40	" " ...	2 Apr., "	30.65
" " ...	1 Apr., "	13.20	" " ...	24 Jan., 1916	27.20
" " ...	7 " 1912	18.97	" " ...	25 " 1916	18.60
" " ...	31 Jan., 1913	15.05	Yeppoon ...	31 " 1893	20.05
Mundooolun ...	21 Jan., 1887	17.95	" " ...	8 " 1898	18.05
Musgrave ...	6 Apr., 1894	13.71	" " ...	3 Feb., 1906	14.90
Nambour ...	9 Jan., 1898	21.00	" " ...	" 1911	14.92
" " ...	7 Mar., "	13.28	" " ...	18 Jan., 1913	13.00
" " ...	27 Dec., 1909	16.80	" " ...	8 Oct., 1914	21.70

\* Mr. Jas. Laidlaw, of Lyndon, states that this fell in 4 hours.

NOTE.—In Queensland falls of 12 or more inches on coast or 10 or more inches inland are taken.

**HEAVY RAINFALLS, WESTERN AUSTRALIA, UP TO 1917, INCLUSIVE.**

Name of Town or Locality.	Date.	Amnt.	Name of Town or Locality.	Date.	Amnt.
		ins.			ins.
Alice Downs ...	20 Jan., 1914	8.12	Obagama ...	28 Feb., 1910	12.00
" ...	21 " "	5.33	Point Torment ...	17 Dec., 1906	11.86
" ...	22 " "	4.04	Port George, W. ...	17 Jan., 1915	11.24
Balla Balla ...	21 Mar., 1899	14.40	Roebuck Plains ...	5 Jan., 1917	14.01
Boodarie ...	21 " "	14.53	" ...	6 " "	22.36
Broome ...	6 Jan., 1917	14.00	Thangoo ...	17-19 Feb. '96	24.18
" ...	7 " 1917	6.20	Whim Creek ...	2 Apr., 1898	7.08
Cossack ...	3 Apr., 1898	12.82	" ...	3 " "	29.41
" ...	16 " 1900	13.23	" ...	20 Mar., 1899	8.89
Croydon ...	3 Mar., 1903	12.00	" ...	21 " "	18.17
Cocos Island ...	29 Nov., "	14.38	Woodstock ...	21 " 1912	13.00
Derby ...	29 Dec., 1898	13.09	Wyndham ...	27 Jan., 1890	11.60
" ...	30 Dec., "	7.14	" ...	11 " 1903	9.98
" ...	6 Jan., 1917	5.97	" ...	12 " "	6.64
" ...	7 " "	16.47	" ...	13 " "	4.20
Fortescue ...	3 May, 1890	23.36	Yeeda ...	28 Dec., 1898	8.42
Frazier Downs ...	3 Mar., 1916	11.25	" ...	29 " "	6.88
Kerdiadary ...	7 Feb., 1901	12.00	" ...	30 " "	6.12
Meda ...	9 Jan., 1914	2.87	" ...	2 Mar., 1916	10.70
" ...	10 " "	8.72	" ...	3 " "	4.80
" ...	2 Mar., 1916	10.55	" ...	5 Jan., 1917	2.06
Mt. Anderson ...	6 Jan., 1917	2.16	" ...	6 " "	10.20
" ...	7 " "	8.60	" ...	7 " "	11.75
" ...	8 " "	1.17			

**HEAVY RAINFALLS, NORTHERN TERRITORY, UP TO 1917, INCLUSIVE.**

		ins.			ins.
Bonrook ...	24 Dec., 1915	10.60	Cosmopolitan Gold		
Borrooloola...	14 Mar., 1899	14.00	Mine ...	24 Dec., 1915	10.60
Brook's Creek ...	4 Jan., 1914	10.68	Lake Nash ...	21 Mar., 1901	10.25
" ...	24 Dec., 1915	14.33	Pine Creek ...	8 Jan., 1897	10.35
Burrundie ...	4 Jan., 1914	11.61	Darwin ...	7 Jan., 1897	11.67

**HEAVY RAINFALLS, VICTORIA, UP TO 1917, INCLUSIVE.**

		ins.			ins.
Balook ...	26 Sept., 1917	5.32	Mt. Buffalo ...	6 June, 1917	8.53
" ...	27 " "	7.23	" ...	7 " "	6.56
" ...	28 " "	2.08			

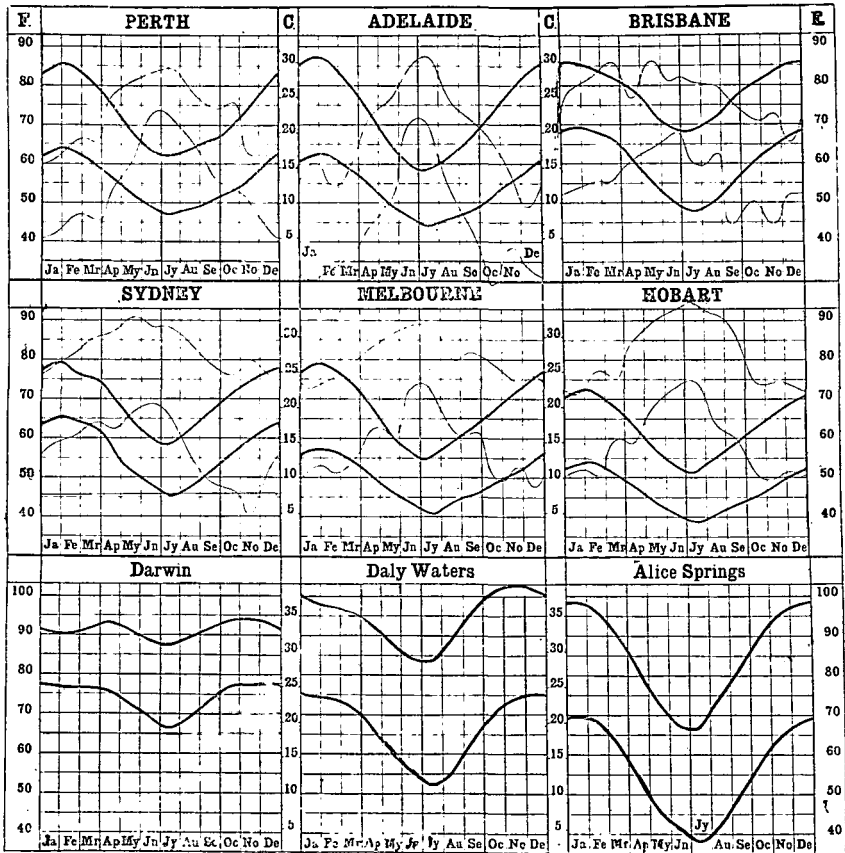
**HEAVY RAINFALLS, TASMANIA, UP TO 1917, INCLUSIVE.**

		ins.			ins.
The Springs ...	30 Jan., 1916	9.72	The Springs ...	31 Jan., 1916	1.03

10. **Snowfall.**—Light snow has been known to fall even as far north, occasionally, as latitude 31° S., and from the western to the eastern shores of the continent. During exceptional seasons it has fallen simultaneously over two-thirds of the State of New South Wales, and has extended at times along the whole of the Great Dividing Range, from its southern extremity in Victoria as far north as Toowoomba in Queensland. During the winter, snow covers the ground to a great extent on the Australian Alps for several months, where also the temperature falls below zero Fahrenheit during the night, and in the ravines around Kosciusko and similar localities the snow never entirely disappears.

The antarctic "V"-shaped disturbances are always associated with our most pronounced and extensive snowfalls. The depressions on such occasions are very steep in the vertical area, and the apexes are unusually sharp-pointed and protrude into very low latitudes, sometimes even to the tropics.

GRAPHS SHEWING ANNUAL FLUCTUATIONS OF MEAN MAXIMUM AND MINIMUM TEMPERATURE AND HUMIDITY IN SEVERAL PARTS OF THE COMMONWEALTH OF AUSTRALIA.



**EXPLANATION OF THE GRAPHS OF TEMPERATURE AND HUMIDITY.**—In the above graphs, in which the heavy lines denote 'temperature' and the thin lines 'humidity,' the fluctuations of mean temperature and mean humidity are shewn throughout the year. These curves are plotted from the data given in the Climatological Tables hereinafter. The temperatures are shewn in degrees Fahrenheit, the inner columns giving the corresponding values in Centigrade degrees. Humidities have not been obtained for Darwin, Daly Waters, and Alice Springs.

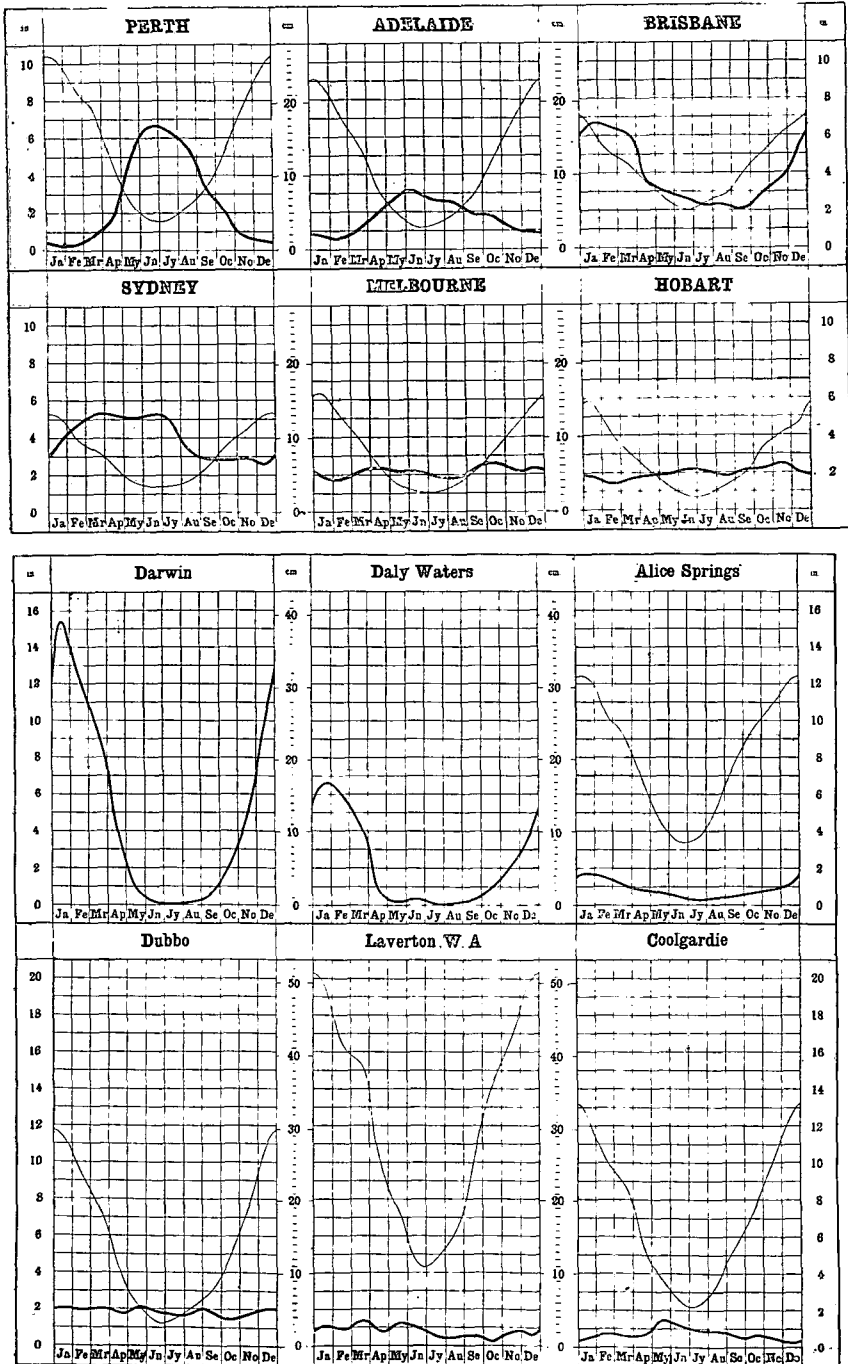
For the thin lines the degree numbers represent relative humidities, or the percentages of actual saturation (absolute saturation = 100).

The upper temperature line represents the mean of the maximum, and the lower line the mean of the minimum results; thus the curves also shew the progression of the range between maximum and minimum temperatures throughout the year. The humidity curves shew the highest and lowest values of the mean monthly humidity at 9 a.m. recorded during a series of years.

**INTERPRETATION OF THE GRAPHS.**—The curves denote mean monthly values. Thus, taking for example, the temperature graphs for Perth, the mean readings of the maximum and minimum temperatures for a number of years on 1st January would give respectively about 83° Fahr. and 62° Fahr. Thus the mean range of temperature on that date is the difference, viz., 21°. Similarly, observations about 1st June would give respectively about 66° Fahr. and 51° Fahr., or a range of 15°.

In a similar manner it will be seen that the greatest mean humidity, say for March, is about 66% and the least mean humidity for the month 46%; in other words, at Perth the degree of saturation of the atmosphere by aqueous vapour for the month of March ranges between 66% and 46%.

GRAPHS SHEWING ANNUAL FLUCTUATIONS OF MEAN RAINFALL AND MEAN EVAPORATION IN SEVERAL PARTS OF THE COMMONWEALTH OF AUSTRALIA.



(For Explanation see next page.)

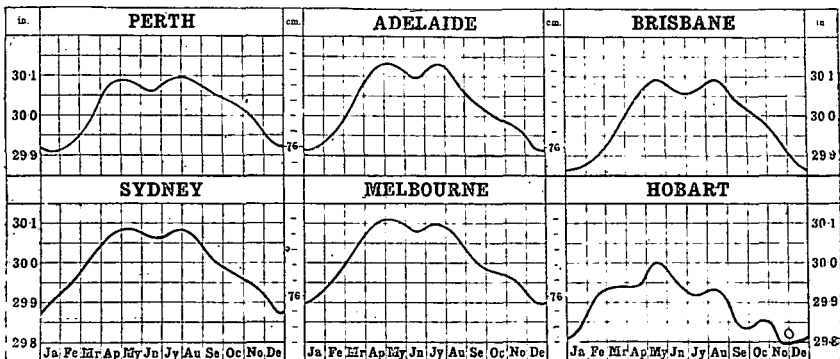
**EXPLANATION OF THE GRAPHS OF RAINFALL AND EVAPORATION.**—On the preceding graphs thick lines denote rainfall and thin lines evaporation, and shew the fluctuation of the mean rate of fall *per month* throughout the year. The results, plotted from the Climatological Tables hereinafter, are shewn in inches (see the outer columns), and the corresponding metric scale (centimetres) is shewn in the two inner columns. The evaporation is not given for Darwin and Daly Waters.

**INTERPRETATION OF THE GRAPHS.**—The distance for any date from the zero line to the curve, represents the average number of inches, reckoned as per month, of rainfall at that date. Thus, taking the curves for Adelaide, on the 1st January the rain falls on the average at the rate of about four-fifths of an inch per month, or, say, at the rate of about  $9\frac{1}{2}$  inches per year. In the middle of June it falls at the rate of nearly 3 inches per month, or, say, at the rate of about 36 inches per year. At Dubbo the evaporation is at the rate of nearly  $11\frac{1}{2}$  inches per month about the middle of January, and only about  $1\frac{1}{2}$  inches at the middle of June.

TABLE SHEWING MEAN ANNUAL RAINFALL AND EVAPORATION IN INCHES AT THE PLACES SHEWN ON PRECEDING PAGE, AND REPRESENTED BY THE GRAPHS.

—	Rainfall.	Evapora- tion.	—	Rainfall.	Evapora- tion.
Perth ...	33.53	66.09	Darwin... ..	61.88	—
Adelaide ...	21.05	54.35	Daly Waters ...	26.33	—
Brisbane ...	46.34	50.65	Alice Springs... ..	10.73	95.26
Sydney ...	48.08	37.39	Dubbo ...	22.40	—
Melbourne ...	25.54	38.68	Laverton, W.A. ...	9.42	143.96
Hobart ...	23.72	32.57	Coolgardie ...	9.61	95.02

GRAPHS SHEWING ANNUAL FLUCTUATIONS OF MEAN BAROMETRIC PRESSURE FOR THE CAPITALS OF THE SEVERAL STATES OF THE COMMONWEALTH OF AUSTRALIA.



**EXPLANATION OF THE GRAPHS OF BAROMETRIC PRESSURE.**—On the above graphs the lines representing the yearly fluctuation of barometric pressure at the State capital cities are means for long periods, and are plotted from the Climatological Tables given hereinafter. The pressures are shewn in inches on about  $2\frac{1}{2}$  times the natural scale, and the corresponding pressures in centimetres are also shewn in the two inner columns, in which each division represents one millimetre.

**INTERPRETATION OF THE BAROMETRIC GRAPHS.**—Taking the Brisbane graph for purposes of illustration, it will be seen that the mean pressure on 1st January is about 29.87 inches, and there are maxima in the middle of May and August of about 30.09 inches.

Chart indicating the area affected and period of duration of the Longest Heat Waves when the Maximum Temperature for consecutive 24 hours reached or exceeded 90° Fah.

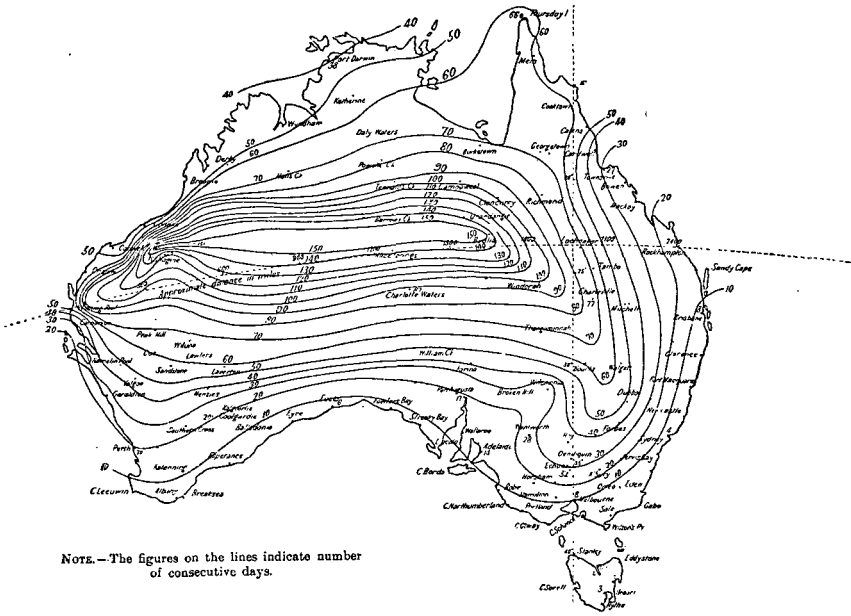
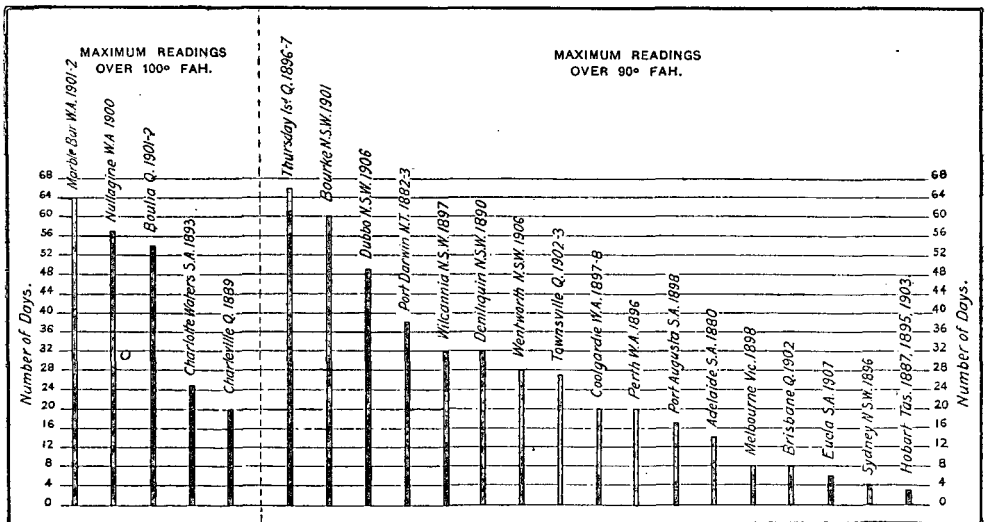
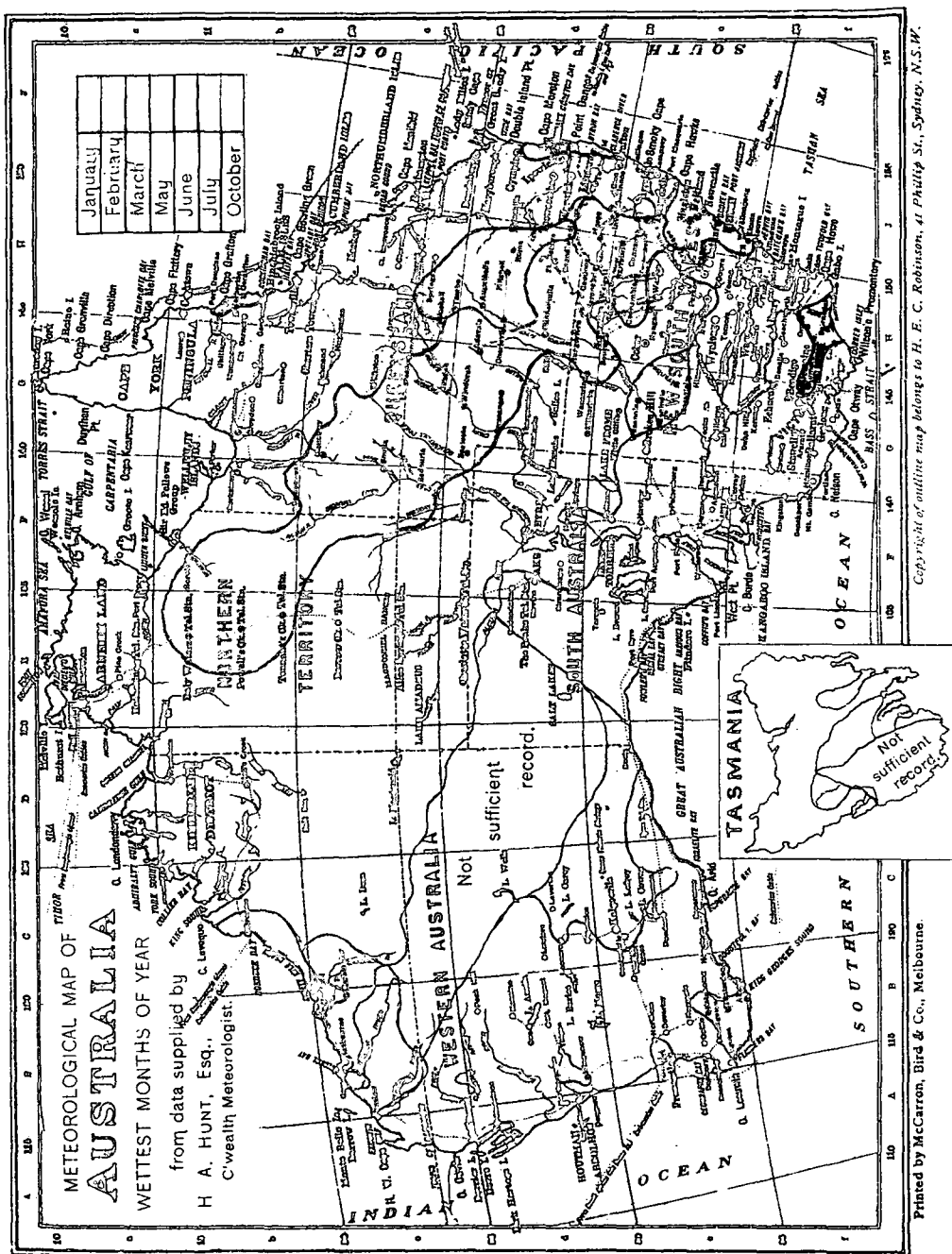


Diagram showing the greatest number of consecutive days on which the Temperature in the shade was over 100° and also over 90° at the places indicated.



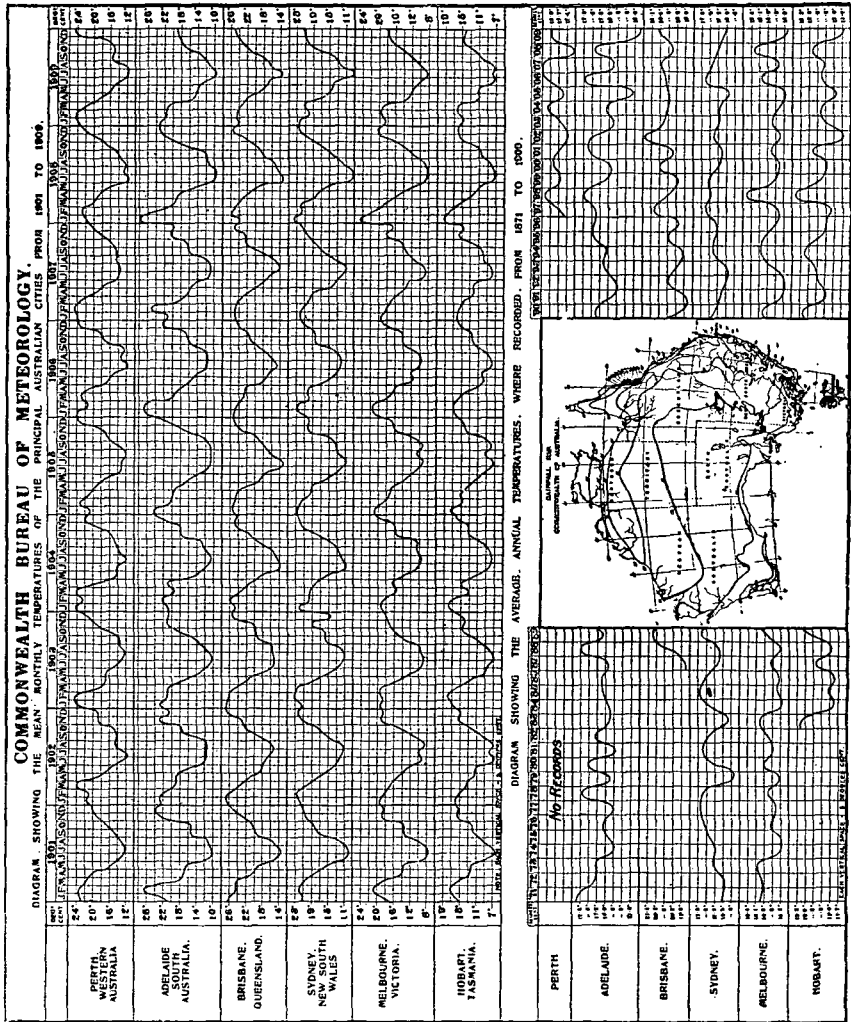


### METEOROLOGICAL SUB-DIVISIONS.

- |                         |                     |                         |                         |                          |
|-------------------------|---------------------|-------------------------|-------------------------|--------------------------|
| <b>WEST AUSTRALIA.</b>  | No.                 | No.                     | No.                     | No.                      |
| 1. East Kimberley.      | 11. Upper North.    | 22. Central Coast.      | 33. Central Tableland.  | 43. North Central.       |
| 2. West Kimberley.      | 12. North-East.     | 23. South-East Coast.   | 33a. Metropolitan.      | 44. Northern Country.    |
| 3. North-West.          | 13. Lower North.    | 24. Darling Downs.      | 34. Cent. Westn. Slope. | 45. Mallee.              |
| 4. Gascoyne.            | 14. Central.        | 25. Naranoa.            | 35. Cent. Westn. Plain. | 46. Wimmera.             |
| 5. South-West.          | 15. Murray Valley.  | 26. South-West.         | 36. Riverina.           | 47. Western.             |
| 6. Eucla.               | 16. South-East.     |                         | 37. South-West Slope.   |                          |
| 7. Eastern.             |                     |                         | 38. Southern Tableland. |                          |
|                         |                     |                         | 39. South Coast.        |                          |
|                         |                     |                         |                         | <b>TASMANIA.</b>         |
|                         |                     |                         |                         | 48. Northern.            |
|                         |                     |                         |                         | 49. W. Coast Mt. Region. |
|                         |                     |                         |                         | 50. Central Plateau.     |
|                         |                     |                         |                         | 51. Midland.             |
|                         |                     |                         |                         | 52. East Coast.          |
|                         |                     |                         |                         | 53. Derwent.             |
|                         |                     |                         |                         | 54. South-Eastern.       |
| <b>SOUTH AUSTRALIA.</b> | <b>QUEENSLAND.</b>  | <b>NEW SOUTH WALES.</b> | <b>VICTORIA.</b>        |                          |
| 8. Northern Territory.  | 17. Peninsular.     | 27. Western.            | 40. Gippsland.          |                          |
| 9. Far North and N.W.   | 18. Gulf.           | 28. North-West Plain.   | 41. North-East.         |                          |
| 10. West.               | 19. Far West.       | 29. North-West Slope.   | 42. Central.            |                          |
|                         | 20. Central.        | 30. Northern Tableland. |                         |                          |
|                         | 21. Nth-East Coast. | 31. North Coast.        |                         |                          |
|                         |                     | 32. Hunter & Manning.   |                         |                          |

The above are the meteorological sub-divisions adopted by H. A. HUNT, Esq., C'wealth Meteorologist.





#### EXPLANATION OF GRAPH.

The six continuous curves on the upper part of the diagram show the fluctuations of mean monthly temperatures of the Australian capitals from 1901 to 1909. The base of each small square denotes one month, and the vertical side  $2^{\circ}$  Centigrade or  $3.6^{\circ}$  Fahrenheit.

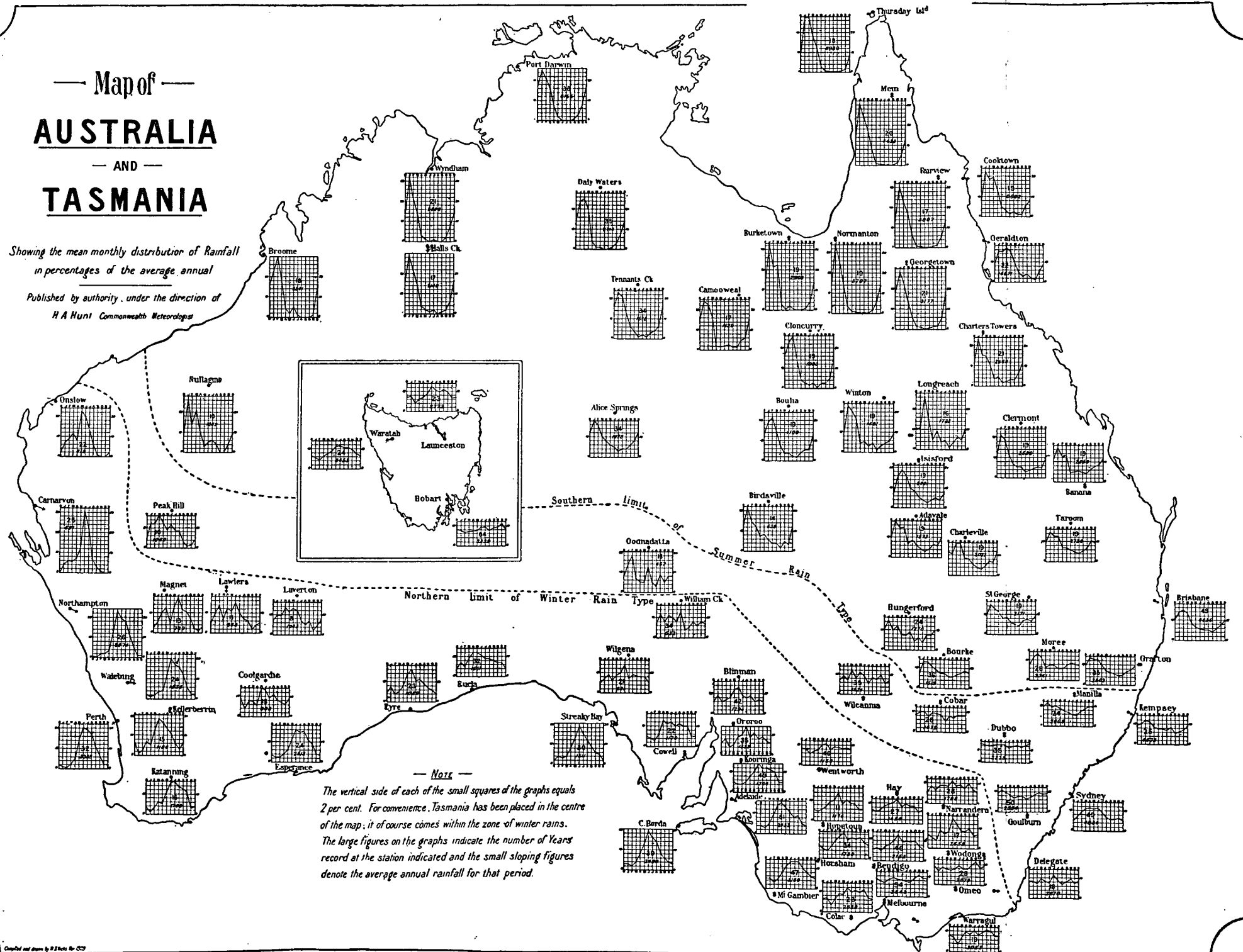
The six curves in lower portion of the diagram similarly show the fluctuations of the mean annual temperatures, from 1871 in the case of Adelaide, Sydney and Melbourne, from 1883, 1887 and 1897 in the case respectively of Hobart, Brisbane and Perth. The base of each rectangle represents one year, and the vertical side  $0.3^{\circ}$  Centigrade or  $0.54^{\circ}$  Fahrenheit.

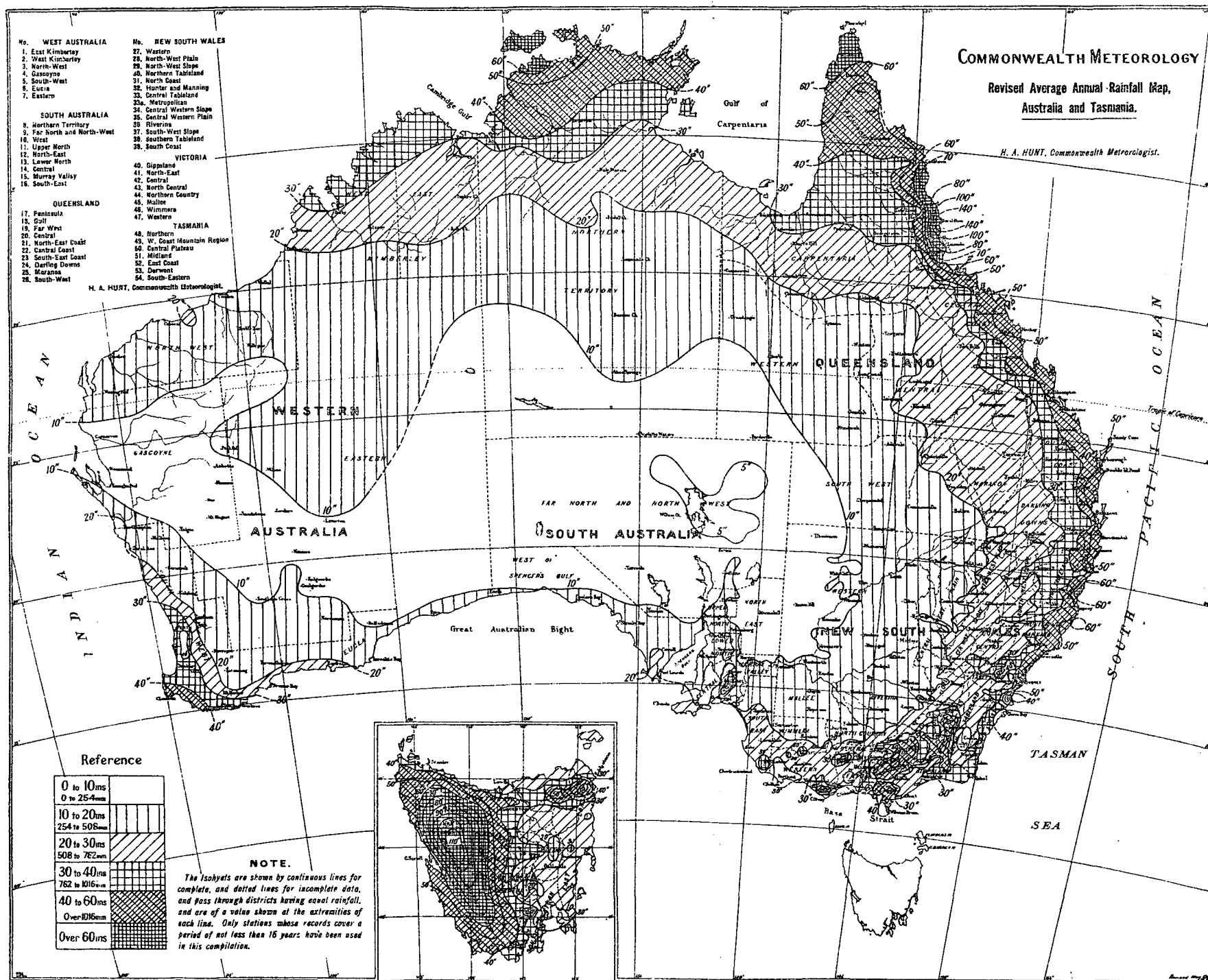
The map shows the areas affected by given amounts of annual rainfall, and is elsewhere given.

— Map of —  
**AUSTRALIA**  
 — AND —  
**TASMANIA**

Showing the mean monthly distribution of Rainfall  
 in percentages of the average annual

Published by authority, under the direction of  
 H A Hunt Commonwealth Meteorologist





11. **Hail.**—Hail falls throughout Australia most frequently along the southern shores of the continent in the winter, and over south-eastern Australia during the summer months. The size of the hailstones generally increases with distance from the coast, a fact which lends strong support to the theory that hail is brought about by ascending currents. Rarely does a summer pass without some station experiencing a fall of stones exceeding in size an ordinary hen-egg, and many riddled sheets of light-gauge galvanised iron bear evidence of the weight and penetrating power of the stones.

Hail storms occur most frequently in Australia when the barometric readings indicate a flat and unstable condition of pressure. They are almost invariably associated with tornadoes or tornadic tendencies, and on the east coast the clouds from which the stones fall are generally of a remarkable sepia-coloured tint.

12. **Barometric Pressures.**—The mean annual barometric pressure (corrected to sea-level and standard gravity) in Australia varies from 29.80 inches on the north coast to 29.92 inches over the central and 30.03 inches in the southern parts of the continent. In January the mean pressure ranges from 29.70 inches in the northern and central areas to 29.91 inches in the southern. The July mean pressure ranges from 29.90 inches at Darwin to 30.12 inches at Alice Springs. Barometer readings, corrected to mean sea-level, have, under anticyclonic conditions in the interior of the continent, ranged from 30.81 inches to as low as 28.44 inches. This lowest record was registered at Townsville during a hurricane on the 9th March, 1903. The mean annual fluctuations of barometric pressure for the capitals of Australia are shewn on page 69.

13. **Wind.**—Notes on the distinctive wind currents in Australia were given in preceding Year Books (see No. 6, page 83) and are here omitted to save space.

14. **Cyclones and Storms.**—The “elements” in Australia are ordinarily peaceful, and although severe cyclones have visited various parts, more especially coastal areas, such visitations are rare, and may be properly described as erratic.

During the winter months the southern shores of the continent are subject to cyclonic storms, evolved from the V-shaped depressions of the southern low-pressure belt. They are felt most severely over the south-western parts of Western Australia, to the south-east of South Australia, in Bass Straits, including the coast line of Victoria, and on the west coast of Tasmania. Apparently the more violent wind pressures from these cyclones are experienced in their northern half, that is, in that part of them which has a north-westerly to a south-westerly circulation.

Occasionally the north-east coast of Queensland is visited by hurricanes from the north-east tropics. During the first four months of the year these hurricanes appear to have their origin in the neighbourhood of the South Pacific Islands, their path being a parabolic curve of south-westerly direction. Only a small percentage, however, reach Australia, the majority recurring in their path to the east of New Caledonia.

Very severe cyclones, popularly known as “Willy Willies,” are peculiar to the north-west coast of Western Australia from the months of November to April inclusive. They apparently originate in the ocean, in the vicinity of Cambridge Gulf, and travel in a south-westerly direction with continually increasing force, displaying their greatest energy near Cossack and Onslow, between latitudes 20° and 22° South. The winds in these storms, like those from the north-east tropics, are very violent and destructive, causing great havoc amongst the pearl-fishers. The greatest velocities are usually to be found in the south-eastern quadrant of the cyclones, with north-east to east winds. After leaving the north-west coast, these storms either travel southwards, following the coast-line, or cross the continent to the Great Australian Bight. When they take the latter course their track is marked by torrential rains, as much as 29.41 inches, for example, being recorded in 24 hours at Whim Creek from one such occurrence. Falls of 10 inches and over have frequently been recorded in the northern interior of Western Australia from similar storms.

Some further notes on severe cyclones and on "Southerly Bursters," a characteristic feature of the eastern part of Australia, will be found in previous issues of the Year Book (see No. 6, pp. 84, 85, 86).

**15. Influences affecting Australian Climate.**—Australian history does not cover a sufficient period, nor is the country sufficiently occupied, to ascertain whether or not the advance of settlement has materially affected the climate as a whole. Local changes therein, however, have taken place, a fact which suggests that settlement and the treatment of the land have a distinct effect on local conditions. For example, the mean temperature of Sydney shews a rise of two-tenths of a degree during the last twenty years, a change probably brought about by the great growth of residential and manufacturing buildings within the city and in the surrounding suburbs during that period. Again, low-lying lands on the north coast of New South Wales, that originally were seldom subject to frosts, have, with the denudation of the surrounding hills from forests, experienced annual visitations, the probable explanation being that, through the absence of trees, the cold air of the high lands now flows, unchecked and untempered, down the sides of the hills to the valleys and lower lands.

(i.) *Influences of Forests on Climate.* As already indicated, forests doubtless exercise a great influence on local climate, and hence, to the extent that forestal undertakings will allow, the weather can be controlled by human agency. The direct action of forests is an equalising one; thus, especially in equatorial regions and during the warmest portion of the year, they considerably reduce the mean temperature of the air. They also reduce the diurnal extremes of their shade temperatures, by altering the extent of radiating surface, by evaporation, and by checking the movement of air. While decreasing evaporation from the ground, they increase the relative humidity. Vegetation greatly diminishes the rate of flow-off of rain, and the washing away of surface soil. Thus, when a region is protected by trees, steadier water supply is ensured, and the rainfall is better conserved. In regions of snowfall the supply of water to rivers is similarly regulated, and without this and the sheltering influence of ravines and "gullies," watercourses supplied mainly by melting snow would be subject to alternate periods of flooding and dryness. This is borne out in the inland rivers. Thus, the River Murray, which has never been known to run dry, derives its steadiness of flow mainly through the causes above indicated.

(ii.) *Direct Influences of Forest on Rainfall.* Whether forests have a direct influence on rainfall is a debatable question, some authorities alleging that precipitation is undoubtedly induced by forests, while others contend the opposite.

Sufficient evidence exists, however, to establish that, even if the rainfall has not increased, the beneficial effect of forest lands in tempering the effects of the climate is more than sufficient to disclose the importance of their protection and extension.

It is the rapid rate of evaporation, induced by both hot and cold winds, which injures crops and makes life uncomfortable on the plains. Whether the forest aids in increasing precipitation there may be doubt, but nobody can say that it does not check the winds and the rapid evaporation due to them.

Trees as wind-breaks have been successfully planted in central parts of the United States, and there is no reason why similar experiments should not be successful in many parts of our treeless interior. The belts should be planted at right angles to the direction of the prevailing parching winds, and if not more than half a mile apart will afford shelter to the enclosed areas.

In previous issues some notes on observations made in other countries were added (see Year Book No. 6, pp. 86 and 95).

**16. Comparison of Rainfalls and Temperatures.**—For the purpose of comparison the following lists of rainfalls and temperatures are given for various important cities throughout the world, for the site of the Federal capital, and for the capitals of the Australian States:—

### COMPARISONS OF RAINFALLS AND TEMPERATURES OF CITIES OF THE WORLD WITH THOSE OF AUSTRALIA.

Place.	Height above M.S.L.	Annual Rainfall.			Temperature.							
		Average.	Highest.	Lowest.	*Mean Summer.	Mean Winter.	Highest on Record.	Lowest on Record.	Average Hottest Month.	Average Coldest Month.		
	Ft.	Ins.	Ins.	Ins.	Fahr.	Fahr.	Fahr.	Fahr.	Fahr.	Fahr.		
Amsterdam	6	27.29	40.59	17.60	63.2	36.8	90.0	4.1	64.4	35.4		
Auckland	125	43.31	63.72	26.32	66.1	52.5	91.0	31.9	67.2	51.8		
Athens	351	15.48	33.32	4.55	79.2	49.1	106.5	19.6	81.1	47.5		
Bergen	146	89.10	102.80	73.50	56.8	34.5	88.5	4.8	57.9	33.6		
Berlin	115	22.95	30.04	14.25	64.7	32.2	98.6	—13.0	66.0	30.0		
Berne	1,877	36.90	58.23	24.69	62.2	30.1	91.4	—3.6	64.4	28.0		
Bombay	37	71.15	114.89	33.41	93.5	75.1	100.0	55.9	84.8	74.2		
Breslau	482	22.00	28.01	16.45	63.9	30.0	100.0	—23.4	65.5	29.3		
Brussels	328	28.85	41.18	17.73	62.6	36.0	95.5	—4.4	63.7	34.5		
Budapest	500	25.20	35.28	16.79	68.6	30.2	98.6	—5.1	70.4	28.2		
Buenos Ayres	72	36.82	80.73	21.53	73.2	51.5	103.1	25.9	74.2	50.5		
Calcutta	21	61.98	89.32	39.38	94.9	67.1	108.2	44.2	85.4	65.5		
Capetown	40	25.50	36.72	17.71	68.1	54.7	102.0	34.0	68.8	53.9		
Caracas	3,420	30.03	47.36	23.70	68.3	65.3	87.8	—48.2	69.2	63.7		
Chicago	823	33.54	45.66	24.52	69.2	25.4	103.0	—23.0	72.3	24.0		
Christchurch	25	25.45	35.30	13.54	61.1	43.4	95.7	21.3	61.6	42.4		
Christiania	82	22.52	31.73	16.26	61.0	24.4	95.0	21.1	62.6	23.9		
Colombo	40	83.63	139.70	51.60	81.5	79.9	95.8	65.0	82.6	79.1		
Constantinople	245	28.75	42.74	14.78	74.0	43.5	103.6	13.0	75.7	43.0		
Copenhagen	46	32.33	28.78	13.94	60.7	32.1	90.5	—13.0	62.2	31.4		
Dresden	115	26.80	34.49	17.72	62.9	32.4	93.4	—15.3	64.4	31.6		
Dublin	47	27.66	35.56	16.60	59.4	42.0	87.2	13.3	60.5	41.7		
Dunedin	300	37.06	53.90	22.15	57.3	43.1	94.0	23.0	57.9	42.0		
Durban	260	40.79	71.27	27.24	75.6	64.4	110.6	41.1	76.7	63.8		
Edinburgh	441	25.21	39.05	16.44	55.8	38.8	87.7	5.0	57.2	35.3		
Geneva	1,328	33.48	46.89	21.14	64.4	33.7	94.8	16.7	56.2	32.2		
Genoa	157	51.29	108.22	38.21	73.8	46.8	94.5	—	75.4	45.5		
Glasgow	184	38.49	56.18	29.05	52.7	41.0	84.9	6.5	58.0	38.4		
Greenwich	159	24.12	35.54	16.38	61.3	39.3	100.0	4.0	69.7	38.6		
Hong Kong	110	84.10	119.72	45.83	81.3	60.3	97.0	32.0	81.8	58.1		
Johannesburg	5,750	31.63	50.00	21.66	65.4	54.4	94.0	23.3	68.2	48.9		
Leipzig	384	24.69	31.37	17.10	63.1	31.5	97.3	—14.3	64.8	30.6		
Lisbon	312	29.18	52.79	17.32	69.6	51.3	94.1	32.5	70.2	49.3		
London	18	24.04	38.20	18.23	61.2	39.3	100.0	9.4	63.8	38.7		
Madras	22	49.06	88.41	18.45	86.7	76.0	113.0	57.5	87.6	75.3		
Madrid	2,149	16.23	27.48	9.13	73.0	41.2	107.1	10.5	75.7	39.7		
Marseilles	246	21.88	43.04	12.28	70.3	45.3	100.4	11.5	72.1	43.3		
Moscow	526	18.94	29.28	12.07	63.4	14.7	99.5	—44.5	66.1	11.9		
Naples	489	34.00	56.58	21.75	73.6	48.0	99.1	23.9	75.4	46.8		
New York	314	42.47	59.68	28.78	72.1	31.7	100.0	—6.0	74.5	30.3		
Ottawa	294	33.40	44.44	26.36	67.2	14.1	98.5	—33.0	69.7	12.0		
Paris	165	21.92	29.56	16.44	63.5	37.1	101.1	—14.1	65.8	36.1		
Pekin	143	24.40	36.00	18.00	77.7	26.6	114.0	—5.0	79.2	23.6		
Quebec	296	40.46	47.57	32.12	63.5	12.4	95.5	—34.3	66.3	10.1		
Rome	166	32.57	57.89	12.72	74.3	46.0	104.2	17.2	76.1	44.6		
San Francisco	155	22.83	38.82	9.31	59.0	51.0	101.0	29.0	61.0	50.0		
Shanghai	14	44.13	62.52	27.91	77.4	39.4	102.9	10.2	79.7	37.4		
Singapore	8	91.99	158.68	32.71	81.2	78.6	94.2	63.4	81.5	78.3		
Stockholm	146	18.31	25.46	11.78	59.7	27.0	91.8	—22.0	62.1	25.7		
Petrograd	16	21.30	29.52	13.75	61.1	17.4	97.0	—38.2	63.7	15.2		
Tokio	70	59.17	77.10	45.72	73.9	38.9	97.9	15.4	77.7	37.1		
Trieste	85	42.94	63.14	26.57	73.9	41.3	99.5	14.0	76.3	39.9		
Vienna	663	24.50	33.90	16.50	65.7	30.4	97.7	—8.0	67.1	28.0		
Vladivostok	55	19.54	33.60	9.39	63.9	11.0	95.7	—21.8	69.4	6.1		
Washington	75	43.80	61.33	18.79	74.7	34.5	104.0	15.0	76.8	32.9		
Wellington (N.Z.)	110	49.70	67.68	30.02	61.7	48.4	98.0	30.0	62.4	47.5		
Zurich	1,542	45.15	78.27	29.02	63.3	31.3	94.1	—0.8	65.1	29.5		

#### FEDERAL CAPITAL SITE.

Canberra (Dist.)	(2,000 to 2,900)	22.50	41.29	10.45	68.5	43.9	101.0	20.0	69.7	43.0
Queanbeyan										

#### THE STATE CAPITALS.

					*	†				
Perth	197	33.53	46.73	20.21	72.8	55.8	107.9	34.2	74.0	55.0
Adelaide	140	21.05	30.87	11.39	73.1	53.0	116.3	32.0	74.1	51.6
Brisbane	137	46.34	88.26	16.17	76.7	59.6	108.9	36.1	77.3	58.3
Sydney	146	48.08	92.76	21.49	70.9	53.9	108.5	35.9	71.7	52.4
Melbourne	115	25.54	44.25	15.61	66.5	50.0	111.2	27.0	67.4	48.6
Hobart	177	23.72	43.39	13.43	61.7	46.7	105.2	27.0	62.3	45.4

\* Mean of the three hottest months. † Mean of the three coldest months.

17. **Climatological Tables.**—The means, averages, extremes, totals, etc., for a number of climatological elements have been determined from long series of observations at the Australian capitals up to and including the year 1917. These are given in the following tables:—

## CLIMATOLOGICAL DATA FOR PERTH, W.A.

LAT. 31° 57' S., LONG. 115° 50' E. HEIGHT ABOVE M.S.L. 197 FT.

BAROMETER, WIND, EVAPORATION, LIGHTNING, CLOUDS, AND CLEAR DAYS.

Month.	Bar. corrected to 32° F. M.n. Sea Level and Stan- dard Gravity from 9 a.m. & 3 p.m. readings.	Wind.				Mean Amount of Evaporation.	No. of Days Lightning.	Mean Amount of Clouds, 9 a.m. 3 p.m. & 9 p.m.	No. of Clear Days.
		Greatest Number of Miles in one day.	Mean Hourly Pres- sure. (lbs.)	Total Miles.	Prevailing Direction.				
No. of yrs. over which observation extends	33	20	20	20	20	19	20	21	21
January ...	29.908	797 27/98	0.70	11,337	S	10.43	1.6	2.8	14.1
February ...	29.927	650 6/03	0.64	9,948	SSE	8.66	1.2	3.0	11.5
March ...	29.987	651 6/13	0.55	10,141	SSE	7.66	1.2	3.4	11.6
April ...	30.076	955 25/00	0.42	8,581	SE	4.77	1.0	4.6	7.4
May ...	30.086	768 5/12	0.35	8,040	ENE	2.76	1.8	5.4	5.4
June ...	30.060	861 27/10	0.37	8,009	NNE	1.73	2.0	9.2	3.1
July ...	30.089	949 11/99	0.40	8,578	NNE	1.65	2.7	5.7	4.8
August ...	30.085	966 15/03	0.43	8,922	W	2.38	1.6	5.6	4.9
September ...	30.056	864 11/05	0.50	9,295	SW	3.32	1.6	5.4	5.1
October ...	30.030	809 6/16	0.52	9,987	SSW	5.24	1.2	5.2	5.6
November ...	29.990	777 18/97	0.62	10,374	S	7.70	1.0	4.0	7.9
December ...	29.926	672 31/98	0.66	11,008	S	9.79	1.6	3.2	11.9
Year { Totals ...	—	—	—	114,170	—	66.09	18.5	—	93.3
Averages ...	30.018	—	0.51	9,514	S	—	—	4.5	—
Extremes ...	—	966 15/8/03	—	—	—	—	—	—	—

## TEMPERATURE AND SUNSHINE.

Month.	Mean Temperature.			Extreme Shade Temperature.		Extreme Range.	Extreme Temperature.		Mean Hours of Sunshine.
	Mean Max.	Mean Min.	Mean	Highest.	Lowest.		Highest in Sun.	Lowest on Grass.	
No. of yrs. over which observation extends	21	21	21	21	21	21	20	19	20
January ...	84.3	53.1	73.7	107.0	16/97	56.4	177.3	22/14	323.8
February ...	84.7	63.3	74.0	107.3	13/15	47.7	169.0	4/69	274.9
March ...	81.0	60.6	70.8	106.1	5/14	45.8	164.0	6/14	268.5
April ...	75.8	56.9	66.3	99.7	9/10	39.3	157.0	8/16	217.9
May ...	68.6	52.3	60.4	90.4	2/07	34.3	139.1	7/14	181.5
June ...	63.7	49.2	56.4	81.7	3/14	36.3	135.5	9/14	145.9
July ...	62.4	47.5	55.0	73.8	24/99	34.2	132.3	13/15	165.8
August ...	63.4	48.1	56.0	81.0	12/14	35.3	139.1	21/13	186.7
September ...	66.0	50.3	58.2	86.7	30/03	38.9	153.6	29/16	200.9
October ...	69.3	52.7	61.0	93.4	17/06	40.9	154.0	29/14	236.5
November ...	75.1	56.3	55.7	104.6	24/13	42.0	166.6	23/15	293.0
December ...	80.8	60.6	70.7	107.9	20/04	48.0	168.7	25/15	325.3
Year { Averages ...	73.0	55.1	64.0	—	—	73.7	—	—	2820.7†
Extremes ...	—	—	—	107.9	20/12/04	34.2	177.3	22/1/14	—
					7/7/16			6,7/7/16	

\* 6/1910 and 14/1912.

† Total for year.

## HUMIDITY, RAINFALL, AND DEW.

Month.	Humidity.				Rainfall.				Dew.	
	Mean 9 a.m.	Highest Mean.	Lowest	Mean.	Mean Monthly. Mean No. of Days Rain.	Greatest Monthly.	Least Monthly.	Greatest in One Day.	Mean Amount of Dew.	Mean No. days Dew
No. of yrs. over which observation extends	21	21	21	42	42	42	42	42	—	21
January ...	53	61	42	0.34	3	2.17 1879	nil.	1.74 28/79	—	2.8
February ...	54	65	46	0.43	3	2.98 1915	nil.	1.09 15/16	—	2.9
March ...	58	66	46	0.70	4	4.50 1896	nil.	1.53 17/76	—	5.7
April ...	63	72	53	1.60	7	4.97 1882	0.05	2.62 30/04	—	9.1
May ...	72	81	61	4.73	14	12.13 1879	0.98 1903	2.80 20/79	—	12.7
June ...	78	83	72	6.69	17	12.11 1890	2.16 1877	2.65 16/00	—	11.9
July ...	79	84	72	6.58	17	11.29 1917	2.42 1876	3.00 4/91	—	12.8
August ...	74	79	67	5.62	18	10.33 1882	0.46 1902	2.79 7/03	—	11.2
September ...	68	75	58	3.34	14	7.72 1903	0.34 1916	1.73 23/09	—	8.6
October ...	62	75	54	2.11	11	7.87 1890	0.49 1892	1.38 15/10	—	5.7
November ...	55	63	50	0.80	6	2.78 1916	nil. 1891	1.11 30/03	—	4.3
December ...	52	62	44	0.59	4	3.05 1888	nil. 1886	1.72 1/88	—	3.0
Year { Totals ...	—	—	—	33.53	118	—	—	—	—	90.7
Averages ...	62	—	—	—	—	12.13	nil.	3.00	—	—
Extremes ...	—	84	42	—	—	5/79	—	4/7/91	—	—

\* 1888, 1894, 1897, and 1911. † 1885, 1891, 1896, 1903, and 1913. ‡ 1877, 1884, and 1886. § 1890 and 1894. § January, February, March, November and December, various years.

# THE CLIMATE AND METEOROLOGY OF AUSTRALIA.

79

## CLIMATOLOGICAL DATA FOR ADELAIDE, S.A.

LAT. 34° 56' S., LONG. 138° 35' E. HEIGHT ABOVE M.S.L. 140 FT.

BAROMETER, WIND, EVAPORATION, LIGHTNING, CLOUDS, AND CLEAR DAYS.

Month.	Bar corrected to 32 F. in Sea Level and Standard Gravity from 9 a.m. & 3 p.m. readings.	Wind.				Mean Amount of Evaporation.	No. of Days Lightning.	Mean Amount of Clouds, 9 a.m. 3 p.m. & 9 p.m.	No. of Clear Days.
		Greatest Number of Miles in one day.	Mean Hourly Pressure. (lbs.)	Total Miles.	Prevailing Direction.				
No. of yrs. over which observation extends	61	40	40	40	40	48	46	50	36
January ...	29.916	758 19/99	0.34	7,952	S x W	8.97	2.4	3.5	7.8
February ...	29.952	691 23/96	0.30	5,850	S x W	7.32	2.0	3.4	7.1
March ...	30.034	628 9/12	0.25	5,794	S x W	5.79	2.3	4.0	6.6
April ...	30.118	773 10/66	0.22	5,905	S W x S	3.38	1.7	5.0	3.9
May ...	30.126	760 9/80	0.31	6,233	N N E	1.99	1.7	5.7	1.7
June ...	30.098	750 19/78	0.25	6,645	N x E	1.23	2.1	6.2	1.3
July ...	30.127	674 25/82	0.25	6,843	N x W	1.29	1.7	5.8	1.6
August ...	30.097	773 31/97	0.28	7,240	N N W	1.87	2.3	5.6	2.2
September ...	30.037	720 9/87	0.32	7,414	W S W	2.83	2.4	5.2	2.8
October ...	29.999	768 28/93	0.34	7,970	S W x W	4.76	3.5	4.9	3.9
November ...	29.973	677 2/04	0.34	7,654	S S W	6.50	3.8	4.6	5.1
December ...	29.919	675 12/91	0.34	7,992	S S W	8.42	2.8	3.8	7.1
Year { Totals	—	—	—	—	—	54.35	28.7	—	51.1
Averages	30.033	—	0.29	7,150	S W x S	—	—	4.8	—
Extremes	—	773*	—	—	—	—	—	—	—

\* 10/4/96 and 31/8/97.

## TEMPERATURE AND SUNSHINE.

Month.	Mean Temperature.			Extreme Shade Temperature.		Extreme Range.	Extreme Temperature.		Mean Hours of Sunshine.				
	Mean Max.	Mean Min.	Mean	Highest.	Lowest.		Highest in Sun.	Lowest on Grass.					
No. of yrs. over which observation extends	61	61	61	61	61	61	40	57	36				
January ...	86.5	61.6	74.1	116.3	26/58	45.1	21/84	71.2	180.0	18/82	36.5	14/79	307.5
February ...	86.1	62.0	74.1	113.6	12/99	46.4	13/05	67.2	170.5	10/00	36.7	24/78	264.1
March ...	80.8	58.9	69.9	109.0	12/61	44.8	-/57	63.2	174.0	17/83	33.8	27/80	236.9
April ...	73.1	54.5	63.8	98.0	10/66	39.6	16/59	58.4	155.0	1/83	30.2	16/17	176.6
May ...	65.4	50.0	57.7	88.3	5/66	36.9	+	51.4	148.2	12/79	25.9	10/91	149.0
June ...	60.2	46.6	53.4	76.0	23/65	32.5	27/76	43.5	138.8	18/79	22.9	12/13	119.8
July ...	58.7	44.5	51.6	74.0	11/06	32.0	24/08	42.0	134.5	26/90	23.3	25/11	137.5
August ...	62.0	45.9	53.9	85.0	31/11	32.3	17/59	52.7	140.0	31/92	23.5	7/88	162.1
September ...	66.2	47.8	57.0	90.7	23/82	32.7	4/58	58.0	160.5	23/82	26.2	15/08	182.9
October ...	72.5	51.4	61.9	102.2	24/14	36.0	-/57	66.2	158.8	19/82	28.5	7/96	228.6
November ...	78.6	55.3	66.9	113.5	21/65	40.8	9/09	72.7	166.9	20/78	31.5	2/09	261.6
December ...	83.4	58.9	71.2	114.2	14/76	43.0	+	71.2	175.7	7/99	32.5	4/84	302.5
Year {	Averages	72.8	53.1	63.0	—	—	—	—	—	—	—	—	2529.1†
	Extremes	—	—	—	116.3	32.0	84.3	180.0	22.9	—	—	—	—
					26/1/58	24/7/08			18/1/82	12/6/13			

\* 26/1895 and 24/1904.

† 16/1861 and 4/1906.

‡ Total for year.

## HUMIDITY, RAINFALL, AND DEW.

Month.	Humidity.			Rainfall.					Dew.	
	Mean 9 a.m.	Highest Mean.	Lowest Mean.	Mean Monthly.	Mean No. of Days Rain.	Greatest Monthly.	Least Monthly.	Greatest in One Day.	Mean Amount of Dew.	Mean No. days Dew
No. of yrs. over which observation extends	50	50	50	79	79	79	79	79	—	46
January ...	38	59	30	0.72	4	4.00 1850	nil.	2.30 2/89	—	4
February ...	41	56	33	0.63	4	2.67 1858	nil.	2.24 14/13	—	5
March ...	47	58	36	1.06	6	4.60 1878	nil.	3.50 5/78	—	11
April ...	57	72	44	1.85	9	6.78 1853	0.06 1910	3.15 5/60	—	14
May ...	68	76	49	2.71	14	7.75 1875	0.20 1891	2.75 1/53	—	16
June ...	77	84	69	3.10	16	8.58 1916	0.42 1886	1.97 26/16	—	16
July ...	76	87	69	2.65	16	5.38 1885	0.36 1899	1.75 10/65	—	17
August ...	69	77	54	2.50	16	6.24 1852	0.35 1914	2.23 19/51	—	16
September ...	61	72	44	1.98	14	4.64 1840	0.45 1896	1.42 25/93	—	16
October ...	51	67	29	1.72	11	3.83 1870	0.17 1914	2.24 16/08	—	12
November ...	43	57	37	1.17	8	3.55 1851	0.04 1885	1.82 28/58	—	7
December ...	39	50	33	0.96	6	3.98 1861	nil.	2.42 23/13	—	5
Year { Totals ...	—	—	—	21.05	124	—	—	—	—	139
Averages ...	53	—	—	—	—	—	—	—	—	—
Extremes ...	—	87	29	—	—	8.58	nil.	3.50	—	—
						6/16	\$	5/3/78		

\* 1848, 1849, 1878 and 1906.

† 1848, 1860, etc.

‡ 1859, etc.

§ January, February, March and December, various years.



THE CLIMATE AND METEOROLOGY OF AUSTRALIA.  
CLIMATOLOGICAL DATA FOR BRISBANE, QUEENSLAND.

LAT. 27° 28' S., LONG. 153° 2' E. HEIGHT ABOVE M.S.L. 137 FT.  
BAROMETER, WIND, EVAPORATION, LIGHTNING, CLOUDS, AND CLEAR DAYS.

Month.	Bar. corrected to 32° F. Mm. Sea Level and Stan- dard Gravity from 9 a.m. & 3 p.m. readings.	Wind.*				Mean Amount of Evaporation.	No. of Days Lightning.	Mean Amount of Clouds 9 a.m. 3 p.m. & 9 p.m.	No. of Clear Days.
		Greatest Number of Miles in one day.	Total Miles.	Mean Hourly Pres- sure. (lbs.)	Prevailing Direction.				
No. of yrs. over which observation extends	31	7	7	7	31	7	31	31	9
January ...	29.867	315 24/14	4,016	0.08	E	5.603	5.2	6.1	2.2
February ...	29.893	340 10/15	4,501	0.13	S E	5.040	5.1	6.2	1.8
March ...	29.947	305 29/16	3,585	0.07	S	4.554	4.0	5.9	4.1
April ...	30.040	215 5/16	3,437	0.07	S	3.675	3.3	5.0	8.6
May ...	30.058	196 3/17	3,566	0.07	S	2.843	2.8	4.8	8.6
June ...	30.059	307 23/16	3,477	0.07	S	2.094	2.0	4.4	7.8
July ...	30.064	279 19/17	3,424	0.07	S	2.257	2.3	3.9	10.9
August ...	30.087	250 22/17	3,794	0.08	S W to S	3.724	3.5	4.0	10.3
September ...	30.025	239 25/17	3,553	0.07	S & N E	3.605	5.5	3.9	11.2
October ...	30.004	308 19/15	3,970	0.08	N E	4.958	6.8	4.5	7.1
November ...	29.948	265 27/14	4,288	0.10	E & N E	5.813	8.1	5.1	5.9
December ...	29.881	295 21/13	4,515	0.11	E & N E	6.482	8.2	5.7	2.9
Year { Totals ...	—	—	—	—	—	50.648	56.8	—	82.4
Averages ...	29.992	—	3.844	0.08	S'y to N E	—	—	5.0	—
Extremes ...	—	340 10/2/15	—	—	—	—	—	—	—

\* Figures published previously are unreliable.

TEMPERATURE AND SUNSHINE.

Month.	Mean Temperature.			Extreme Shade Temperature.		Extreme Range.	Extreme Temperature.		Mean Hours of Sunshine.
	Mean Max.	Mean Min.	Mean	Highest.	Lowest.		Highest in Sun.	Lowest on Grass.	
No. of yrs. over which observation extends	31	31	31	31	31	31	31	31	9
January ...	85.6	68.9	77.3	108.9 14/02	58.8 4/93	50.1	166.4 10/17	49.9 4/93	221.8
February ...	84.5	68.4	76.5	101.9 11/04	58.7	43.2	165.2 6/10	49.3 9/99	199.8
March ...	82.4	66.4	74.4	96.8 16/88	52.4 29/13	44.4	160.0 1/87	45.4 29/13	196.4
April ...	79.2	61.6	70.4	95.2 †	48.6 17/00	46.6	153.8 11/16	37.0 17/00	208.8
May ...	73.5	55.2	64.4	88.8 18/97	41.3 24/99	47.5	147.0 1/10	29.8 8/97	193.8
June ...	69.2	50.8	60.0	83.2 28/15	36.3 29/08	46.9	133.9 6/06	25.4 32/88	165.4
July ...	68.3	48.2	58.3	83.4 28/88	36.1 ‡	47.3	146.1 20/15	23.9 11/90	183.5
August ...	71.2	49.8	60.5	87.5 28/07	37.4 6/87	50.1	141.9 20/17	27.1 9/99	214.8
September ...	75.9	54.7	65.3	95.2 16/12	40.7 1/96	54.5	155.5 25/03	30.4 1/89	227.5
October ...	79.8	59.8	69.7	101.4 18/93	43.3 3/99	58.1	158.5 31/89	34.9 8/89	242.9
November ...	83.0	64.0	73.5	106.1 18/13	48.5 2/05	57.6	162.3 7/89	38.8 1/05	232.3
December ...	85.3	67.1	76.3	105.9 26/93	56.4 13/12	49.5	160.4 7/14	49.1 3/94	236.8
Year { Averages ...	78.2	59.6	68.9	—	36.1	72.8	166.4	23.9	2513.8†
Extremes ...	—	—	—	108.9 14/1/02	—	—	101/17	11/7/90	—

\* 10/11/04. † 9/96 and 5/03. ‡ 12/94 and 2/96. § 12/7/94 and 2/7/96. ¶ Total for year.

HUMIDITY, RAINFALL, AND DEW.

Month.	Humidity.				Rainfall.				Dew.	
	Mean 9 a.m.	Highest Mean.	Lowest Mean.	Mean Monthly.	Mean No. of Days Rain.	Greatest Monthly.	Least Monthly.	Greatest in One Day.	Mean Amount of Dew.	Mean No. Days Dew
No. of yrs. over which observation extends	31	31	31	66	58	66	66	—	—	21
January ...	65	79	53	6.49	14	27.72 1895	0.61 1882	18.31 21/87	—	3.9
February ...	69	82	55	6.63	14	40.39 1893	0.77 1904	8.36 16/93	—	4.1
March ...	72	85	56	5.97	12	34.04 1870	0.58 1868	11.18 14/08	—	7.0
April ...	72	79	60	3.65	12	15.28 1867	0.05 1897	4.47 13/16	—	10.3
May ...	74	85	64	2.91	10	13.85 1876	0.00 1846	5.62 9/79	—	11.1
June ...	75	82	67	2.62	8	14.03 1873	0.00 1847	6.01 9/93	—	8.5
July ...	74	81	61	2.28	8	8.46 1889	0.00 1841	3.54 †	—	10.0
August ...	71	80	61	3.25	7	14.67 1879	0.00	4.89 12/87	—	7.8
September ...	66	76	47	2.09	9	5.43 1886	0.10 1907	2.46 2/94	—	7.6
October ...	62	72	49	2.70	10	9.99 1882	0.14 1900	1.95 20/89	—	5.8
November ...	59	72	46	3.73	10	12.40 1917	0.00 1842	4.46 16/86	—	2.8
December ...	61	67	52	5.02	12	13.99 1910	0.35 1865	6.60 28/71	—	2.5
Year { Totals ...	—	—	—	46.34	129	—	—	—	—	81.4
Averages ...	68	—	—	—	—	40.39	0.00	18.31	—	—
Extremes ...	—	85	46	—	—	2/1893	†	21/1/87	—	—

\* 1862, 1869, 1880. † 5/1846, 7/1841, 8/1862, 1869, 1880, 11/1842. ‡ 15/76, 16/89.

## CLIMATOLOGICAL DATA FOR SYDNEY, N.S.W.

LAT. 33° 52' S., LONG. 151° 12' E. HEIGHT ABOVE M.S.L. 146 FT.

BAROMETER, WIND, EVAPORATION, LIGHTNING, CLOUDS, AND CLEAR DAYS.

Month.	Bar. corrected to 32° F. Mm. Sea Level and Standard Gravity from 24 hourly readings.	Wind.				Mean Amount of Evaporation.	No. of Days Lightning.	Mean Amount of Clouds 9 a.m. to 3 p.m. & 9 p.m. to 3 a.m.	No. of Clear Days.
		Greatest Number of Miles in one day.	Mean Hourly Pressure. (lbs.)	Total Miles.	Prevailing Direction.				
No. of yrs. over which observation extends.	58	51	51	51	51	38	58	56	54
January ...	29.900	721 1/71	0.36	8,218	N E	5.189	4.7	5.8	1.9
February ...	29.944	871 12/69	0.33	7,046	N E	4.016	4.3	6.1	1.3
March ...	30.010	943 20/70	0.25	6,822	N E	3.440	4.2	5.6	1.8
April ...	30.071	803 6/83	0.23	6,234	N E	2.456	3.9	5.0	2.6
May ...	30.081	758 6/98	0.22	6,416	W	1.670	3.4	4.8	3.1
June ...	30.060	712 7/00	0.29	7,052	W	1.357	2.2	4.9	3.4
July ...	30.076	930 17/79	0.28	7,186	W	1.443	2.5	4.5	4.1
August ...	30.068	756 22/72	0.26	6,950	W	1.791	3.3	4.1	4.4
September ...	30.003	964 6/74	0.30	7,198	W	2.596	4.2	4.4	4.0
October ...	29.971	926 4/72	0.33	7,820	N E	3.713	4.9	5.0	2.3
November ...	29.936	720 13/65	0.34	7,579	N E	4.459	5.5	5.6	1.6
December ...	29.882	938 3/84	0.35	8,073	N E	5.264	5.7	5.6	1.8
Year { Totals ...	—	—	—	—	—	37.394	48.5	—	32.1
Year { Averages ...	30.000	—	0.30	7,225	N E	—	—	5.1	—
Year { Extremes ...	—	964 6/9/74	—	—	—	—	—	—	—

## TEMPERATURE AND SUNSHINE.

Month.	Mean Temperature.			Extreme Shade Temperature.		Extreme Range.	Extreme Temperature.		Mean Hours of Sunshine.
	Mean Max.	Mean Min.	Mean	Highest.	Lowest.		Highest in Sun.	Lowest on Grass.	
No. of yrs. over which observation extends.	59	59	59	59	59	59	59	59	7
January ...	78.5	64.9	71.7	108.5 13/96	51.2 14/65	57.3	164.3 26/16	44.2 18/97	207.7
February ...	77.4	64.9	71.1	101.0 19/66	49.3 28/63	51.7	162.1 16/96	43.4 25/91	170.1
March ...	75.5	63.0	69.2	102.6 3/69	48.8 14/86	53.8	172.3 4/89	39.9 17/13	185.1
April ...	71.0	57.9	64.4	89.0 4/09	44.6 27/64	44.4	144.1 10/77	33.3 24/09	144.3
May ...	65.0	52.0	58.5	83.5 1/59	40.2 22/59	43.3	129.7 1/96	29.3 25/17	115.6
June ...	60.5	48.2	54.3	74.7 24/72	38.1 29/62	36.6	123.0 14/78	28.1 24/11	90.9
July ...	59.0	45.8	52.4	74.9 17/71	35.9 12/80	39.0	144.3 15/98	24.0 4/93	111.3
August ...	62.3	47.6	54.9	82.0 31/84	36.8 3/74	45.2	149.0 30/78	26.1 4/09	167.7
September ...	66.6	51.5	59.0	91.1 24/07	40.8 18/64	50.3	142.2 12/78	30.1 17/05	176.1
October ...	71.1	55.9	63.5	99.7 19/98	43.3 2/99	56.4	151.9 *	32.7 9/05	193.4
November ...	74.4	59.6	67.0	102.7 21/78	45.8 1/05	56.9	158.5 28/99	36.0 6/06	182.1
December ...	77.2	62.9	70.0	107.5 21/04	49.3 2/59	58.2	171.5 4/88	41.5 6/09	195.3
Year { Averages ...	69.9	56.2	63.0	—	—	—	—	—	1939.6†
Year { Extremes ...	—	—	—	108.5 13/1/96	35.9 12/7/90	72.6	172.3 4/3/89	24.0 4/7/93	—

\* 30 and 31/14. † Total for year.

## HUMIDITY, RAINFALL, AND DEW.

Month.	Humidity.			Rainfall.				Dew.	
	Mean 9 a.m.	Highest Mean.	Lowest Mean.	Mean Monthly.	Mean No. of Days Rain.	Greatest Monthly.	Least Monthly.	Greatest in One Day.	Mean Amount of Dew.
No. of yrs. over which observation extends.	59	59	59	59	59	59	59	59	58
January ...	69	78	58	3.44	14.0	15.26 1911	0.42 1888	7.08 13/11	0.002 1.3
February ...	72	81	60	4.54	14.2	18.56 1873	0.31 1902	8.90 25/73	0.004 2.1
March ...	75	85	63	5.16	15.0	18.70 1870	0.11 18.6	6.52 9/13	0.008 3.4
April ...	77	87	63	5.47	13.2	24.49 1861	0.06 1888	7.52 29/60	0.017 5.6
May ...	76	90	66	4.98	15.1	20.87 1889	0.18 1860	8.36 28/89	0.022 6.3
June ...	78	89	65	5.12	12.9	16.30 1885	0.19 1902	5.17 16/84	0.018 5.3
July ...	77	88	65	4.62	12.6	13.21 1900	0.12 1862	5.72 28/06	0.016 5.4
August ...	73	84	56	3.12	11.4	14.89 1899	0.04 1885	5.32 2/60	0.014 4.9
September ...	69	79	49	2.91	12.0	14.05 1879	0.08 1882	5.65 10/79	0.008 3.5
October ...	67	77	47	2.97	12.7	11.14 1916	0.21 1867	6.37 13/02	0.007 3.1
November ...	67	77	47	2.91	12.5	9.88 1865	0.07 1915	4.23 19/00	0.004 2.2
December ...	67	77	52	2.64	12.9	8.47 1910	0.23 1913	4.75 13/10	0.003 1.5
Year { Totals ...	—	—	—	48.08	158.5	—	—	—	0.123 44.5
Year { Averages ...	72	—	—	—	—	—	—	—	—
Year { Extremes ...	—	90	42	—	—	24.49 April/61	0.04 Aug./85	8.90 25/2/73	—

## CLIMATOLOGICAL DATA FOR MELBOURNE, VICTORIA.

LAT. 37° 49' S., LONG. 144° 58' E. HEIGHT ABOVE M.S.L. 115 FT.  
 BAROMETER, WIND, EVAPORATION, LIGHTNING, CLOUDS, AND CLEAR DAYS.

Month.	Bar. corrected to 32° F. at Sea Level and Standard Gravity from 9 a.m., 3 & 9 p.m. readings.	Wind.				Mean Amount of Evaporation.	No. of Days Lightning.	Mean Amount of Clouds, 9 a.m. 3 p.m. & 9 p.m.	No. of Clear Days.
		Greatest Number of Miles in one day.	Mean Hourly Pressure. (lbs.)	Total Miles.	Prevailing Direction.				
No. of yrs. over which observation extends.	60	48	48	48	48	44	10	60	10
January ...	29.913	583 10/97	0.29	7,301	S W. S. E.	6.40	1.9	5.1	7.8
February ...	29.962	566 8/68	0.27	6,347	S W. S. E.	5.04	2.4	5.1	6.9
March ...	30.032	677 9/81	0.22	6,313	S W. S. E.	3.94	1.8	5.5	5.2
April ...	30.100	597 7/69	0.19	5,697	S W. N. W.	2.36	0.9	5.8	4.2
May ...	30.105	693 12/65	0.19	5,894	N W. N. E.	1.46	0.4	6.5	2.7
June ...	30.077	761 13/76	0.24	6,387	N W. N. E.	1.09	1.1	6.7	2.0
July ...	30.094	755 8/74	0.22	6,350	N W. N. E.	1.05	0.9	6.3	3.3
August ...	30.066	637 14/75	0.25	6,813	N W. N. E.	1.48	0.9	6.3	2.4
September ...	29.995	617 11/73	0.28	6,993	N W. S. W.	2.28	1.8	6.1	2.8
October ...	29.969	899 5/66	0.29	7,277	S W. N. W.	3.32	2.2	5.9	4.8
November ...	29.948	734 13/66	0.28	7,000	S W. S. E.	4.52	2.7	5.9	3.4
December ...	29.898	655 1/75	0.30	7,439	S W. S. E.	5.74	2.1	5.5	4.4
Year { Totals ...	—	—	—	—	—	38.68	19.1	—	49.9
Year { Averages ...	—	—	0.25	6.651	S W. N. W.	—	—	5.9	—
Year { Extremes ...	30.013	899 5/10/66	—	—	—	—	—	—	—

## TEMPERATURE AND SUNSHINE.

Month.	Mean Temperature.			Extreme Shade Temperature.		Extreme Range.	Extreme Temperature.		Mean Hours of Sunshine.
	Mean Max.	Mean Min.	Mean	Highest.	Lowest.		Highest in Sun.	Lowest on Grass.	
No. of yrs. over which observation extends.	62	62	62	62	62	62	52	58	36
January ...	78.2	56.7	67.4	111.2 14/62	42.0 28/85	69.2	178.5 14/62	30.2 28/85	246.6
February ...	77.8	56.9	67.4	109.5 7/01	40.3 9/65	69.3	167.5 15/70	30.9 6/91	208.8
March ...	74.4	54.7	64.5	105.5 2/93	37.1 17/84	68.4	164.5 1/68	28.9 *	173.3
April ...	68.3	50.6	59.5	94.0 6/65	34.8 24/88	59.2	152.0 8/61	25.0 23/97	136.6
May ...	61.4	46.6	54.0	83.7 7/05	29.9 29/16	53.8	142.6 2/59	21.1 26/16	107.7
June ...	56.8	44.0	50.4	79.2 1/07	28.0 11/66	44.2	129.0 11/61	20.4 17/95	83.8
July ...	55.5	41.6	48.6	68.4 24/78	27.0 21/69	41.4	125.8 27/80	20.5 12/03	99.8
August ...	58.8	43.4	51.1	77.0 20/85	28.3 11/63	48.7	137.4 29/69	21.3 14/02	123.9
September ...	62.5	45.6	54.0	82.3 30/07	31.1 16/08	51.2	142.1 20/67	24.7 13/07	143.7
October ...	67.0	48.1	57.6	98.4 24/14	32.1 3/71	66.3	154.3 28/68	25.3 8/17	177.7
November ...	71.4	51.1	61.3	105.7 27/94	36.5 2/96	65.2	159.6 29/65	24.6 2/96	209.4
December ...	75.3	54.1	64.7	110.7 15/76	40.0 4/70	70.7	170.3 20/63	33.2 1/04	233.7
Year { Averages ...	67.3	49.4	58.4	—	—	—	—	—	1945.0†
Year { Extremes ...	—	—	—	111.2 14/1/62	27.0 21/7/69	84.2	178.5 14/1/62	20.4 17/6/95	—

\* 17/1884 and 20/1897. † Total for year.

## HUMIDITY, RAINFALL, AND DEW.

Month.	Humidity.			Rainfall.				Dew.	
	Mean 9 a.m.	Highest Mean.	Lowest Mean.	Mean Monthly.	Mean No. of Days Rain.	Greatest Monthly.	Least Monthly.	Greatest in One Day.	Mean Amount of Dew.
No. of yrs. over which observation extends.	61	61	61	62	62	62	62	59	10
January ...	60	73	52	1.86	7	5.68 1904	0.04 1878	2.97 9/97	2.2
February ...	61	75	52	1.70	7	6.24 1904	0.03 1870	2.14 7/04	3.1
March ...	65	78	53	2.16	9	7.50 1911	0.18 1859	3.05 15/78	7.5
April ...	70	83	62	2.28	11	6.71 1901	0.33 1908	2.28 22/01	9.1
May ...	76	86	62	2.18	13	4.31 1862	0.45 1901	1.85 7/91	7.7
June ...	77	88	72	2.11	14	4.51 1859	0.73 1877	1.74 21/04	8.9
July ...	78	88	72	1.82	13	7.02 1891	0.57 1902	2.71 12/91	11.3
August ...	72	81	63	1.91	14	3.59 1909	0.48 1903	1.87 17/81	8.7
September ...	69	81	61	3.42	14	7.93 1916	0.52 1907	2.62 12/80	6.4
October ...	67	79	52	2.61	13	7.61 1869	0.29 1914	3.00 17/69	7.6
November ...	63	75	52	2.27	11	6.71 1916	0.25 1895	2.57 16/76	1.9
December ...	60	75	49	2.32	9	7.18 1863	0.11 1904	2.62 28/07	1.4
Year { Totals ...	—	—	—	25.54	135	—	—	—	75.8
Year { Averages ...	68	—	—	—	—	—	—	—	—
Year { Extremes ...	—	88	49	—	—	7.93 9/16	0.03 2/70	3.05 15/3/78	—

## CLIMATOLOGICAL DATA FOR HOBART, TASMANIA.

LAT. 42° 53' S., LONG. 147° 20' E. HEIGHT ABOVE M.S.L. 177 FT.  
BAROMETER, WIND, EVAPORATION, LIGHTNING, CLOUDS, AND CLEAR DAYS.

Month.	Bar. corrected to 32° F. M.S. Sea Level and Stan- dard Gravity from 9 a.m. & 3 p.m. readings.	Wind.				Mean Amount of Evaporation.	No. of Days Lightning.	Mean Amount of Clouds, 8 a.m. 3 p.m. & 9 p.m.	No. of Clear Days.
		Greatest Number of Miles in one day.	Mean Hourly Pres- sure. (lbs.)	Total Miles.	Prevailing Direction.				
No. of yrs. over which observation extends.	33	7	7	7	13	7	10	55	11
January ...	29.824	500 30/16	0.20	6,030	NW & SE	5.70	0.6	5.9	3.3
February ...	29.919	393 19/13	0.12	4,319	SE & N	3.98	1.3	5.9	2.7
March ...	29.930	406 8/15	0.11	4,539	N & SE	3.00	1.1	5.9	1.7
April ...	29.947	432 7/17	0.14	4,884	NW & SE	2.02	0.8	6.0	1.8
May ...	29.987	411 3/16	0.12	4,667	NNW	1.32	0.6	6.0	1.8
June ...	29.952	415 17/13	0.11	4,365	NNW	0.77	0.8	6.0	1.8
July ...	29.927	396 17/11	0.11	4,517	NNW	0.68	0.4	5.7	2.8
August ...	29.926	459 30/11	0.13	4,909	NNW	1.25	0.9	5.9	2.3
September ...	29.838	516 26/15	0.19	5,671	NNW	1.98	0.7	6.1	1.7
October ...	29.841	461 8/12	0.18	5,762	NW & SE	3.27	1.1	6.2	1.6
November ...	29.793	508 18/15	0.19	5,703	NW & SE	3.53	1.1	6.3	1.8
December ...	29.809	375 21/16	0.17	5,581	NW & SE	4.57	1.6	6.2	1.1
Year { Totals ...	—	—	—	60,947	—	32.57	11.0	—	24.4
Averages ...	—	—	0.15	5,079	—	—	—	6.0	—
Extremes ...	—	516 26/9/15	—	—	—	—	—	—	—

## TEMPERATURE AND SUNSHINE.

Month.	Mean Temperature.			Extreme Shade Temperature.		Extreme Range.	Extreme Temperature.		Mean Hours of Sunshine.
	Mean Max.	Mean Min.	Mean	Highest.	Lowest.		Highest in Sun.	Lowest on Grass.	
No. of yrs. over which observation extends.	47	47	47	71	71	71	30	51	93
January ...	71.6	53.0	62.3	105.0 1/00	40.3 *	64.7	160.0 †	30.6 19/97	210.9
February ...	71.5	53.2	62.3	104.4 12/99	39.0 20/87	65.4	165.0 24/98	28.3 -187	177.3
March ...	68.0	50.8	59.4	98.8 5/46	36.0 31/05	62.8	150.0 3/05	27.5 30/02	167.8
April ...	62.7	47.6	55.1	90.0 2/56	30.0 25/56	60.0	142.0 18/93	25.0 -186	135.5
May ...	57.2	43.5	50.4	77.5 1/41	29.2 20/02	48.3	128.0 †	20.0 19/02	128.7
June ...	52.7	40.9	46.8	75.0 7/74	28.0 22/79	47.0	122.0 12/94	21.0 6/87	100.1
July ...	51.8	39.1	45.4	72.0 22/77	27.0 18/66	45.0	118.7 19/96	18.7 16/86	123.1
August ...	55.0	40.9	47.9	77.0 3/76	30.0 10/73	47.0	129.0 -187	20.1 7/09	140.8
September ...	58.6	43.0	50.8	80.0 9/72	30.0 12/41	50.0	138.0 23/93	23.7 -186	137.7
October ...	62.8	45.3	54.0	92.0 24/14	32.0 12/89	60.0	156.0 9/93	23.8 %	162.9
November ...	66.2	48.2	57.2	98.0 20/88	35.2 5/13	62.8	154.0 19/92	26.0 1/08	191.2
December ...	69.5	51.3	60.4	105.2 30/97	38.0 13/06	67.2	156.0 18/05	27.2 -196	185.4
Year { Averages ...	62.3	46.4	54.3	—	—	—	—	—	164.3†
Extremes ...	—	—	—	105.2 30/12/97	27.0 18/7/66	78.2	165.0 24/2/98	15.7 16/7/86	—

\* 3/72 and 2/06. † 5/86 and 13/05. ‡ 1888 and 1892. § 1/86, 1899. % Total for year.

## HUMIDITY, RAINFALL, AND DEW.

Month.	Humidity.			Rainfall.				Dew.	
	Mean 9 a.m.	Highest Mean	Lowest Mean.	Mean Monthly.	Mean No. of Days Rain.	Greatest Monthly.	Least Monthly	Greatest in One Day	Mean Amount of Dew.
No. of yrs. over which observation extends.	38	38	38	75	74	75	75	51	—
January ...	64	75	51	1.80	9	5.91 1893	0.03 1841	2.96 30/16	—
February ...	65	76	51	1.45	8	9.15 1854	0.07 1847	4.50* 25/54	—
March ...	70	76	59	1.65	10	7.60 1854	0.02 1843	2.06 14/11	—
April ...	74	85	60	1.90	11	6.50 1909	0.07 1904	5.02 20/09	—
May ...	79	90	68	1.87	13	6.37 1905	0.10 1843	3.22 14/58	—
June ...	83	94	73	2.19	14	8.15 1889	0.22 1852	4.11 14/89	—
July ...	82	97	74	2.12	14	5.98 1849	0.30 1850	2.00 27/78	—
August ...	78	92	64	1.53	13	10.16 1858	0.23 1854	4.35 12/58	—
September ...	72	87	60	2.14	14	7.14 1844	0.39 1847	3.50 29/44	—
October ...	68	75	51	2.24	15	6.67 1906	0.26 1850	2.58 4/06	—
November ...	64	74	50	2.56	14	8.92 1849	0.16 1868	3.97 6/49	—
December ...	62	73	51	1.97	11	9.00 1875	0.11 1842	2.48 13/16	—
Year { Totals ...	—	—	—	23.72	146	—	—	—	59.3
Averages ...	72	—	—	—	—	—	—	—	—
Extremes ...	—	97	50	—	—	10.16 8/1858	0.02 3/1843	5.02 20/4/09	—

\* 4.18, 26/54 also.

## § 7. The Climatic Factors Influencing Settlement in Australia.\*

1. **Introduction.**—There is an impression among some Australians that the climate of the continent does not vary to any great extent from one end to the other. Of all the large land masses, Australia has probably the least average elevation and the most unbroken coastline; both of these conditions make for uniformity. But the area of the continent is very large, and it lies in one of the most variable climatic belts on the earth's surface. It would, therefore, be a serious error to judge the Australian climate only by the southern types thereof, with which alone, probably some three-quarters of the inhabitants are personally familiar.

It will be useful for comparison to glance for a moment at the better appreciated diversity of climates in the region lying between Britain and India. Facing the almost permanent westerly gales is the rugged west coast of Ireland. It receives a perpetual drenching from the moisture-laden winds, and the result is that Western Ireland has large areas of bog land and much deciduous forest, but is too wet for cereals. Somewhat similar conditions obtain in Western Tasmania. (See Fig. 1.)

Passing further to the south-east the Mediterranean lands are reached. Here is an absence of deciduous trees, their place being taken largely by evergreens. A sharply-marked winter rainfall, with considerable periods of drought, is experienced. The same features are characteristic of most of southern Australia. South of the Mediterranean the desert regions of the Sahara are bordered by a grassland belt watered by scanty winter rains, and these conditions also characterise the region of the new Trans-Australian railway. To the east of the Mediterranean, and somewhat remote from the sea, are the Steppes of the Caspian. These are to some extent paralleled by the Australian Riverina—though the latter is warmer.

The true desert of Sahara, with a rainfall below five or six inches, has its counterpart in the region around Lake Eyre, and perhaps in Western Australia. Nearer the Equator are the Savanna regions, grass lands watered by scanty summer rain. The Sudan is of this type, and it is represented in Australia by the inland regions along the Tropic.

The survey has now reached the tropical regions of India, which have a good monsoonal rainfall. Here a distinction should be made between the centre of the Peninsula with its well-marked winter drought, and the East coast. The former agrees in the matter of rainfall with Northern Australia, while the Madras coast resembles the North Queensland coast with a much heavier and more uniform rainfall.

In addition to the eight climatic regions already noted, there is a special type along the coast of New South Wales which differs somewhat from any so far touched upon. Its homoclines are in China and Uruguay.

It would be quite proper to include Papua and Macquarie Island in a survey of the climate of the Commonwealth. Macquarie Island lies in 55° S. latitude, to the south of Tasmania, and its climate resembles that of Iceland. Hence one could extend the scale through the whole of the regions possessing tropical, temperate and sub-polar climates.

There can be little doubt that climate is the major factor in determining the permanent settlement of the various regions of the earth. It controls agriculture and grazing, which in their turn largely determine manufacturing industries. It controls comfort and health—very potent factors in the spread of white civilisations. In fact, were it not for certain valuable mineral deposits, one would find that practically all the main centres of white settlement could be defined in terms of temperature, humidity and rainfall.

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\* Contributed by Griffith Taylor, D.Sc., B.E., B.A., F.G.S., F.R.G.S., Physiographer, Commonwealth Meteorological Service. Prepared with the approval of the Commonwealth Meteorologist, H. A. Hunt, Esq., F.R.Met.Soc., who has generously placed the resources of the Bureau of Meteorology at the disposal of the author.

Similar controls, no doubt, operate in connection with the other races. Probably the black race flourishes within narrower limits, and the yellow race within wider limits than the white race; but a very short survey will shew that the Australian Commonwealth contains regions akin to those inhabited by types of each of the great races of mankind.

Thus there are in Australia, as shewn by Fig. 1, climatic factors such as are associated with all the following peoples and products:—

Nordic races as in parts of Ireland—tall, fair-haired men interested in pigs, potatoes and peat. Shorter Alpine "roundheads," as in Central France, concerned with sheep and cattle. Short dark Mediterranean people, as in Italy, busy with wheat, olives and wine. In the irrigated districts of Egypt are the Copts growing rice and cotton; while in the drier regions near by are the Syrians, concerned *inter alia* with tobacco and goats. In the true desert is the Tuareg, whose environment has made him a nomad. Belonging also to the "white race" are the Hindus of the North of India, who grow cotton, rice, jute, and oilseeds.

The yellow Kirghiz of the Caspian Steppes are pastoral nomads whose southern lands are becoming important cotton areas. Corresponding to the New South Wales coast is Eastern China with tea, maize and sugar cane grown by pure Mongolians.

The Savannas of the Sudan are peopled by negroes interested in cattle, millet and various gums. The South of India, containing dark Dravidians of uncertain origin, produces coffee, tea and tropical oilseeds.

Here, indeed, is a "diversity of creatures," whose whole scheme of life is largely determined by their environment. In Australia the environment is as diverse, and it is logical to assume that it will exert a potent, if slow, influence on Australians.

**2. Temperature.**—Early in the study of climatology it was discovered that the Southern Hemisphere is cooler than the Northern. This fact has been taken by many people to imply that Tropical Australia is much cooler than similarly situated regions in other continents. Moreover, it has been stated that the heat equator is confined to the Northern Hemisphere, and hence that only a mere coastal fringe along the north coast can properly be assigned to Tropical Australia.

The above general statements are true—but the deductions are wrong, for the reason that Australia is an exception to both rules. There is no mysterious virtue about the Southern Hemisphere—it is merely the great preponderance of ocean which keeps its average temperature low. But the few large land masses—of which Australia is one—are hot enough, as it is only too easy to shew.

TABLE I.—LATITUDE AND TEMPERATURE.

Latitude.	Average Temperature.*		Temperature in Australian Regions along 135° E. Long.	
	N. Hemisphere.	S. Hemisphere.		
	° F.	° F.	° F.	
0° ...	78.5	78.5	80	} Tropic.
5° ...	79.0	77.9	80	
10° ...	79.5	77.0	82	
15° ...	79.4	75.7	81	
20° ...	78.0	73.0	76	
25° ...	74.7	69.7	70	} Temperate.
30° ...	68.5	65.4	66	
35° ...	63.0	59.4	61	
40° ...	57.2	53.2	55	

\* From Hann.

Note.—The last column shews smoothed temperatures along longitude 135° E., which fairly represent the "continental" portion of Australia.

Hence we see that Tropical Australia is not only hotter than the average for the Southern Hemisphere, but is hotter than the average for the Northern Hemisphere. It is indeed much hotter than any land between us and the North Pole. It is, therefore, obvious that the heat equator must be drawn through Northern Australia.

There are two further reasons why Australian climates have not been properly estimated in the past.

Almost all maps shewing world temperatures are so constructed that the effect of elevation is removed by reducing the temperature readings to sea level. Thus authoritative maps shew the city of Mexico as having an average annual temperature of 80° F., much the same as Broome, in the same latitude. But actually the average temperature of Mexico is under 60° F.; and the same applies to many other tropical areas. As will be seen later, no continent has so small a proportion of highlands as Australia.

Furthermore, if a tabulation is made of those localities having an average annual temperature over 84° F., it will be found that there are only four such regions of greatest heat recorded in the authoritative work by Hann.

TABLE II.—HOTTEST REGIONS OF THE GLOBE.

Region.			Average Temperature.	Average Rainfall.
1. Timbuktú and vicinity	...	...	84° F.	0-10 inches
2. Massowah to Khartum	...	...	86° F.	10-20 "
3. Tinnevely in South India	...	...	84.3° F.	40-60 "
4. Wyndham in North-west Australia	...	...	84.6° F.	40-60 "

If the moistness of the heat be considered, it will be seen that Wyndham has an unenviable position among the world's climates—at any rate in the rainy season.

**3. Effect of Elevation.**—Large portions of the British tropical areas are, luckily, situated at high altitudes. Thus, in Rhodesia approximately 90 per cent. (some 400,000 square miles) is over 2000 feet above sea level. This lowers the temperature by about 7° F., and is a vital factor in regard to settlement. It will be interesting to see how the elevation affects settlement in Australia. In the Tropics there are only three areas which are worth considering.

TABLE III.—TROPICAL HIGHLANDS IN AUSTRALIA.

Tropical Highlands.*	Approximate Area over 2000 feet.	Per cent. of State or Territory.
A. Atherton Tableland, Queensland	12,000 sq. miles	2
B. Macdonnell Ranges, N. Territory	14,000 "	2.6
C. Fortescue River area, W. Australia	11,000 "	1

\* The index letters correspond with those on Fig. 8.

Adding a few much smaller areas it will be found that only four per cent. of Tropical Australia is high enough to benefit in this respect. The result is that no injustice will be done if the Tropic of Capricorn be taken as truly representing the southern limit of the tropics in Australia.

As regards temperate Australia, there are but few noteworthy features in the distribution of temperature. Only in the east and south-east are the settled highlands extensive enough to be important.

The following tables give approximate areas for the temperate regions above 2000 feet in Eastern Australia. These all have an adequate rainfall:—

TABLE IV.—EASTERN TEMPERATE HIGHLANDS.

Well-watered Highlands.*	Approximate Area over 2000 feet.	Rainfall.
D. Darling Downs and Tambo Downs, Queensland ... ..	2,300 sq. miles	30 inches
E. New England Plateau, N. S. Wales, including Macpherson Ranges ...	23,500 "	35 "
F. Blue Mountain Plateau, N. S. Wales	14,800 "	30 "
G. Monaro Plateau, N. S. Wales ...	13,800 "	25 "
H. Victorian Highlands, Victoria ...	7,700 "	50 "
J. Tasmanian Highlands ... ..	4,400 "	40 "
	66,000 "	...

\* The index letters correspond with those on Fig. 8.

Of less important temperate highlands—all situated in regions of low rainfall—there are several in other States.

TABLE V.—DRY TEMPERATE HIGHLANDS.

Dry Highlands.*	Approximate Area.	Estimated Rainfall.
K. Flinders Range, S. Australia ...	1,300 sq. miles	10 inches.
L. Musgrave Ranges, S. Australia ...	6,300 "	10 "
M. Macdonnells (temperate), N. Territory	7,600 "	9 "
N. Wiluna Highlands, W. Australia ...	11,600 "	9 "
O. Ashburton Highlands, W. Australia...	21,200 "	9 "
	48,000 "	...

\* The index letters correspond with those on Fig. 8.

There are a few other small areas, such as the Stirling Range, Western Australia, which average less than 1000 square miles each—so that the total highland areas of Australia may be summed up as follows:—

TABLE VI.—AUSTRALIAN HIGHLANDS OVER 2000 FEET.

Tropical—Dry ... ..	25,000 sq. miles	} 40,000 sq. miles
Wet ... ..	15,000 "	
Temperate—Dry ... ..	48,000 "	} 114,000 "
Wet ... ..	66,000 "	
Total ... ..	154,000 "	

This is a very small proportion (about five per cent.) of the total area of the Commonwealth.

4. **Range of Temperature.**—The range of temperature during the year depends on two factors; distance from the coast, and distance from the Equator. Both of these operate to increase the range. There is nothing unusual in the range of temperature in Australia, but it has considerable bearing on the health and comfort of the inhabitants, and so deserves a brief mention. (See Fig. 2.) The isopleth for a range of 15° F. almost agrees with the southern coastline; while the 20° isopleth runs along the east from Mackay to Gabo Island, and along the west from Perth to Broome. The north coast is bathed by tropical seas and the range is very little, usually about 10°.



The highest range occurs in a central belt between Bourke and Wiluna, at each of which the temperature of the coldest month is  $33^{\circ}$  degrees below that of the hottest month. The other isopleths run in concentric fashion around this central belt of high range.

In the cooler regions an equable climate is often desirable from the point of view of health. The following table shews many favourable localities:—

TABLE VII.—TEMPERATE LOCALITIES WITH LOW RANGE.

Locality.	Range.
Breaksea Island, Western Australia ...	$11.0^{\circ}$ F.
Cape Leeuwin, " ...	$11.8^{\circ}$ "
Cape Sorell, Western Tasmania ...	$12.0^{\circ}$ "
Cape Otway, Victoria ...	$12.3^{\circ}$ "
Wilson's Promontory, Victoria ...	$13.8^{\circ}$ "
Robe, South Australia ...	$13.9^{\circ}$ "
Gabo Island, Victoria ...	$14.4^{\circ}$ "

} Difference between  
average temperature  
of hottest month and  
average temperature  
of coldest month.

In the tropics, however, a large range is always advantageous, and this is only experienced away from the coast. (As will be seen, the humidity unfortunately follows the same rule.) Hence, during the cooler months of the year, in the inland tropical regions the climate is delightful. But on the north coast the range is reduced to a minimum, as the following table shews:—

TABLE VIII.—TROPICAL LOCALITIES WITH LOW RANGE OF TEMPERATURE.

Locality.	Range.
Thursday Island ... ..	$5.5^{\circ}$ F.
Darwin ... ..	$8.2^{\circ}$ "
Cooktown ... ..	$9.9^{\circ}$ "
Cairns ... ..	$11.9^{\circ}$ "

Almost all the region north of  $18^{\circ}$  S. latitude (Broome to Daly Waters to Mackay) experiences a range of less than  $18^{\circ}$  F.

5. **Humidity.**—Humidity is an element which requires somewhat more elaborate apparatus for recording purposes than do temperature and rainfall, hence it is not so generally recorded. However, the Commonwealth has a very well distributed corps of observers, and Australia is, in consequence, one of the first continents to be adequately mapped in this respect. (See Fig. 3.)

MEAN MONTHLY HUMIDITY.

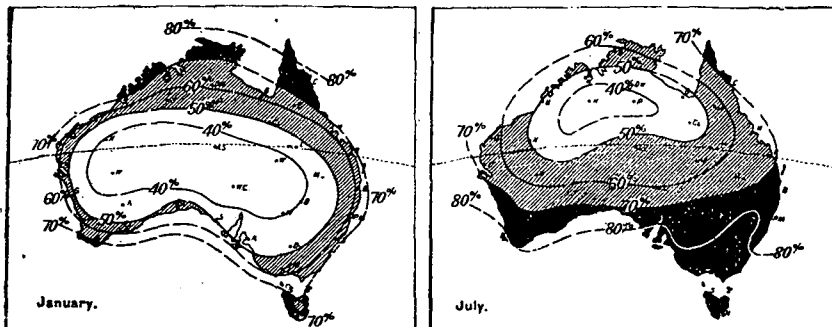


Fig. 3.

If the relative humidity for each of the twelve months be plotted for Australia, it is found that the isopleths are concentric, and more or less parallel with the coastline. The "centre of minimum humidity" moves north and south with the sun, being near Powell's Creek, Northern Territory, in June, and in higher latitudes in summer. There seem indeed to be two summer "centres," one just north-east of Lake Eyre, and the other north-east of Wiluna. These districts have long been known as Sturt's Stony Desert and Gibson's Desert respectively, and it is probable that the association is by no means accidental.

The two extreme months are June, when the general humidity is greatest, and October, when it is least. Luckily, in Australia by far the greatest area of high humidity occurs in winter in the cooler southern portion of the continent. (This is, of course, directly related to the fact that the southern rains occur chiefly in winter.) Here the high humidity has no harmful effect on the population, and may be beneficial to crops.

There is, unfortunately, a season of high humidity in the tropics, and it is this which is of great interest in considering the effect of climate on settlement. It is usually granted that the tropical regions having, in the warm season, a mean monthly humidity exceeding seventy per cent. are distinctly uncomfortable to live in, even if this be not positively injurious to the stamina of the race.

Considering the six hottest months only (from November to April, inclusive), the following tropical stations, together with the intermediate areas, are the most humid. All occur along the north or north-east coast:—

TABLE IX.—HIGH RELATIVE HUMIDITY IN AUSTRALIAN SUMMER.

Locality.	Nov.	Dec.	Jan.	Feb.	March.	April.	Average Summer.
	%	%	%	%	%	%	%
Broome ...	59	67	71	72	66	56	65
Wyndham ...	62	65	68	69	65	50	63
Darwin ...	67	71	77	79	75	70	73
Thursday Island	67	71	82	83	85	77	77
Cairns ...	69	71	76	75	74	76	73
Townsville ...	69	73	73	73	71	67	71
Brisbane ...	59	62	66	70	72	73	67
Sydney ...	67	67	70	72	75	77*	71*

\* In April Sydney is cool enough to nullify the high humidity.

6. **Rainfall.**—There is no doubt that rainfall is the chief factor governing settlement in Australia as in other temperate regions of the world. In the United States, the relation between the 20-inch isohyet and the population isopleth is striking. All to the east (over twenty inches) has over six persons per square mile, almost all to the west (under twenty inches) has less than two persons per square mile.

The average annual rainfall map† is now fairly complete except in the central belt across Western Australia, where rains are very variable and records short or wanting. But this map alone gives a very incomplete statement of the value of the rains. Thus, each of the four following stations has a rainfall of about fifteen inches per year; but the settler would make a grave mistake if he assumed that the rains were all of the same type:—Roebourne (lat. 21°) and Northam (lat. 32°) in Western Australia, Tennant's Creek (lat. 20°) in Northern Territory, and Cobar (lat. 32°) in Central New South Wales, have all annual totals of fifteen inches. None of these is debarred from settlement by excessive heat or dryness, but two of them will never support a large population.

The Roebourne region is marked by the most unreliable rainfall in Australia. In 1891 it received only 0.13 inches, while in 1900 there fell 42 inches. Tennant's Creek is chiefly characterised by a totally dry period of seven months, which extends from April to

† See article by H. A. Hunt, Esq., F. R. Met. Soc., Commonwealth Meteorologist, in this Year Book p. 56.

October. Cobar receives its fifteen-inch rainfall spread out almost uniformly through the year. Northam, Western Australia, obtains practically all of it during the wheat period, and is consequently a much more important farming region than Cobar, which is only barely within the dry-farming area.

It is, therefore, obvious that the season at which the rain occurs, and the certainty of its occurrence, are matters as important as the total amount. Hence it is appropriate to base the classification of the climatic regions on a consideration of these factors.

**7. Rain Reliability.**—From the previous section it will be seen that in some regions of Australia the rainfall is more reliable than in others—quite irrespective of the total amounts. Thus, the twenty inches that the wheat farmer can expect to receive with some certainty in the Katanning district, Western Australia, is much more valuable than the twenty inches which may fall in the course of a few days at Wiluna, Western Australia.\* To obtain the rain reliability map shewn in Fig. 4 the following procedure was adopted:—

A table of annual rainfalls for twenty years (1891-1910) was consulted. At each of the localities listed the departures from the normal rainfall were obtained. These departures (ignoring sign) were then averaged and the result expressed as a percentage of the total rainfall. Thus (taking a striking example), the average rainfall at Onslow, Western Australia, is about eight and a-half inches, but it has varied from one inch in 1896, to twenty-seven inches in 1900. The average of all such departures is five inches, and this is inserted on the map (as a percentage of eight and a-half inches) as sixty per cent.

The map shews two "poles." Near Perth, Western Australia, is the most reliable region, where a variation of less than ten per cent. from the average is all that is likely. All along the south coast the variation is of the order of fifteen per cent., and thence becomes greater as one proceeds north and north-west. The maximum variation or least reliability, occurs at Onslow, sixty per cent., and Charlotte Waters, fifty-seven per cent.

Most of the north coast shews a variation of twenty per cent., or moderate reliability, and the same is true for the east coast. A region of unexpected unreliability is the Barkly Tableland, which seems to vary by about forty-five per cent. In fact, all the cooler portions of the Northern Territory have a very unreliable, as well as a low, rainfall; and this chart certainly indicates that agriculture without irrigation will always be a risky speculation anywhere in the inland portions of the Northern Territory and of Queensland.

It explains, also, why a low average rainfall of ten inches in Swanland, south-west Western Australia, and Eyre's Peninsula is able to give better crops than ten inches in Victoria or New South Wales. It is much more to be counted on in the south-west than in the south-east.

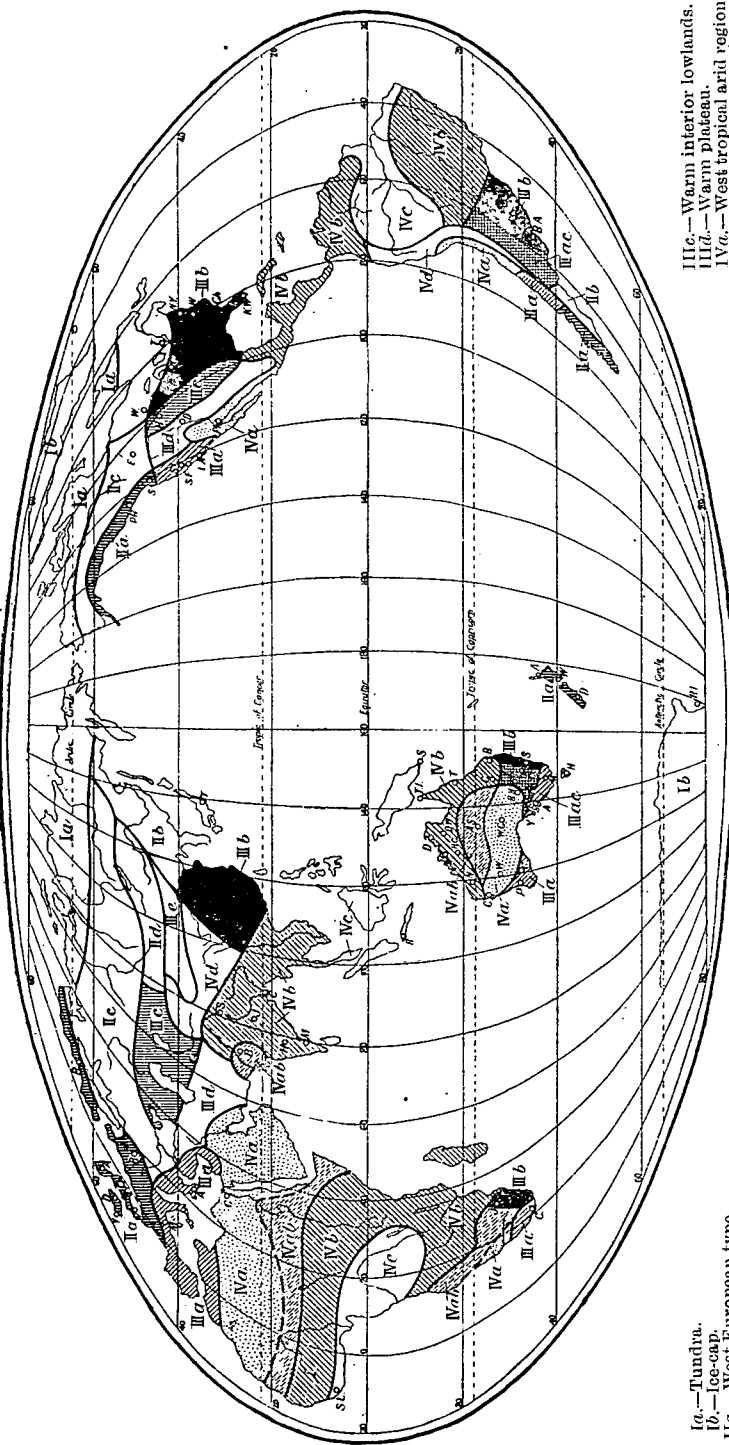
It is to be noted that in the arid interior receiving less than ten inches per year the warmer northern portion has a much more erratic rainfall than the southern cooler portion. Since, moreover, evaporation is so much greater in the northern moiety, this leads to the vegetation and pasture being less scanty in the south than it is along the same isohyet in the north.

**8. Rain Regions.**—Two further rain boundaries deserve discussion. The chief is of course that separating the region of winter rains from the region of summer rains.† (Fig. 5.) The winter rains are, speaking generally, associated with the westerly winds of the Antarctic depressions. These latter Lows travel eastwards along tracks which depend on the season, i.e. on the declination or the apparent track of the overhead sun. They affect Australia chiefly in winter.

\* *Vide* "The Australian Environment," Griffith Taylor, 1918.

† See H. A. Hunt, Bulletin 4, Melbourne, 1909.

# AUSTRALIAN REGIONS AND FOREIGN HOMOCIMES.



- Ia.—Tundra.
- Ib.—Ice-cap.
- Ic.—West European type.
- IId.—West tropical arid region (some winter rain).
- IIVa.—West tropical arid region (some summer rain).
- IIVb.—Monsoon and Sudan type.
- IIVc.—Equatorial lowlands.
- IIVd.—Hot plateau.

- Reference.
- Ia
  - Ib
  - Ic
  - IId
  - IIVa
  - IIVb
  - IIVc
  - IIVd

Fig. 1.

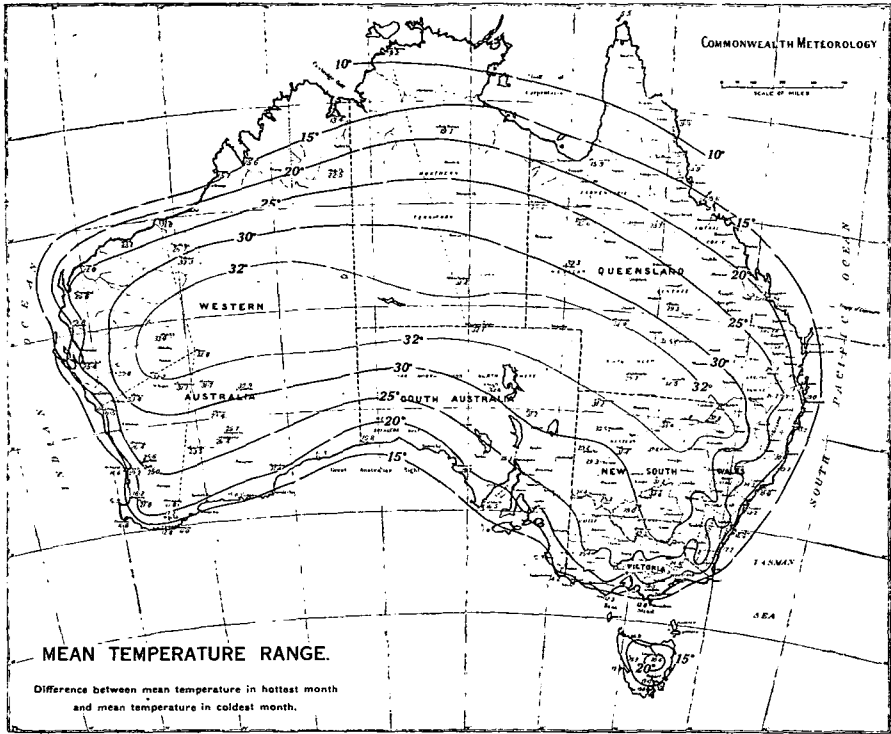


Fig. 2.

## RAIN RELIABILITY.

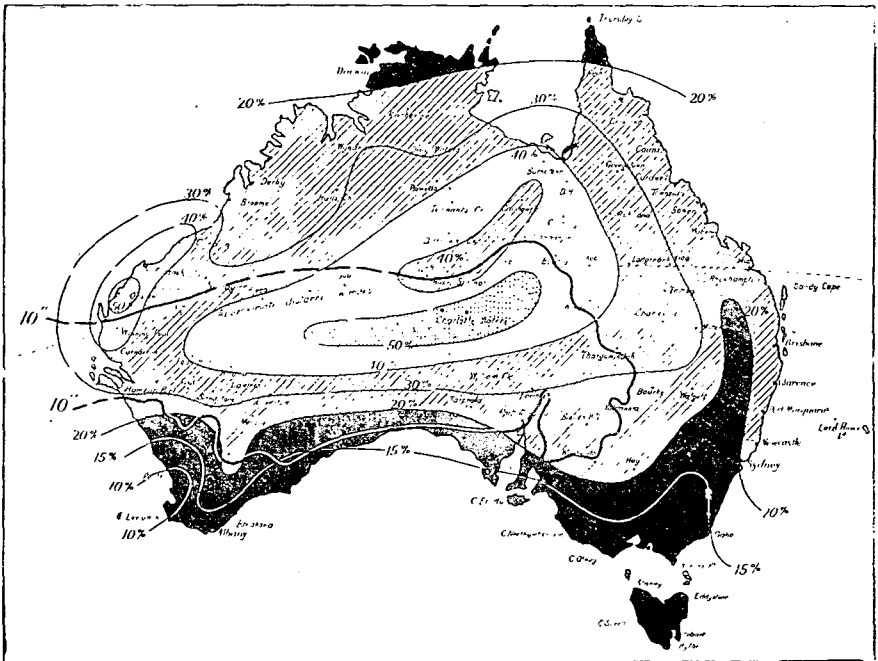


Fig. 4.

Mean Percentage Variations from annual normal years, 1891-1910.  
Regions with most reliable rainfall are shown black.

ECONOMIC REGIONS OF AUSTRALIA BASED ON VARIATIONS IN THE AMOUNT,  
SEASON, UNIFORMITY AND RELIABILITY OF THE RAINFALL.

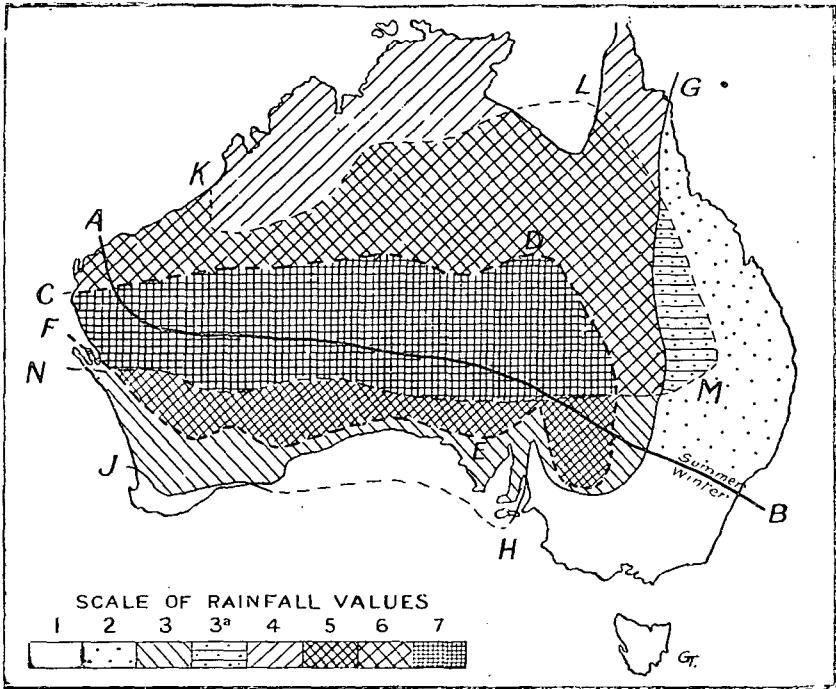


Fig. 5.

The grades are described in Table 10, page 97.

HYTHERGRAPHS FOR TROPICAL AUSTRALIA.

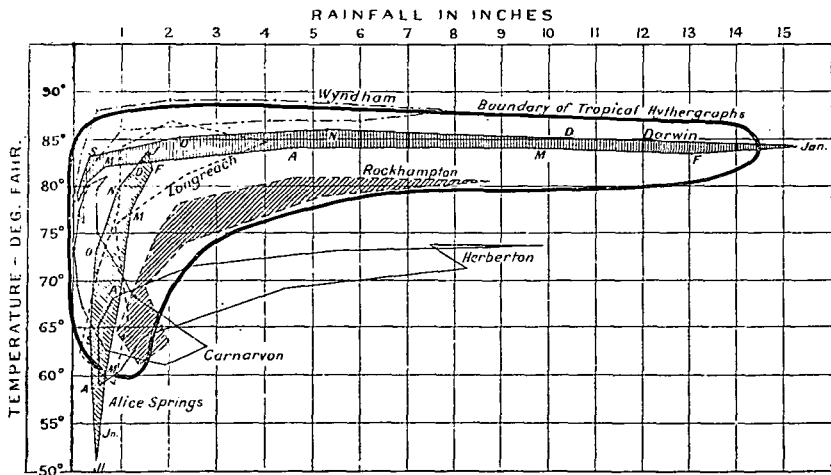


Fig. 6.

The heavy black line includes almost all tropical localities.

# HYTHERGRAPHS FOR TROPICAL AREAS GROWING WHEAT, RICE, COTTON, TEA AND COFFEE.

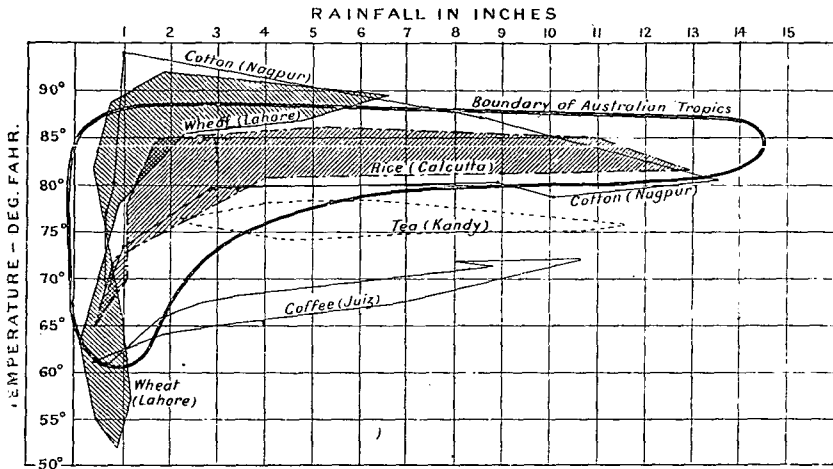


Fig. 7.

The heavy black line shows the limits of almost all the tropical localities in Australia.

## ISOPLETHS OF DISCOMFORT.

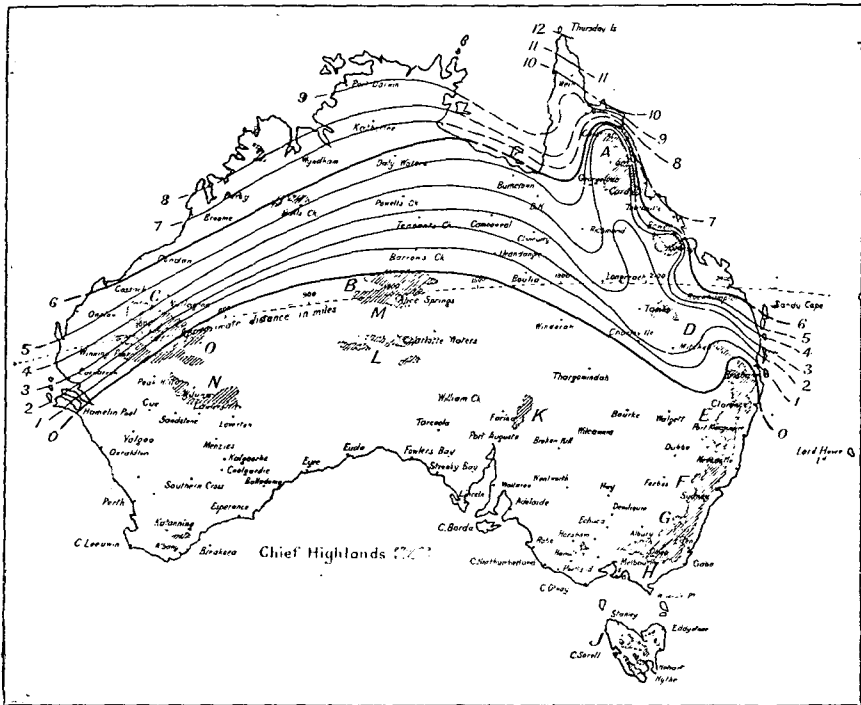


Fig. 8.

The figures show the number of months with an average wet bulb over 70° F. The shaded areas are over 2000 feet above sea level.

## CHARACTERISTIC CLIMOGRAPHS ILLUSTRATING IMPORTANT CLIMATIC TYPES.

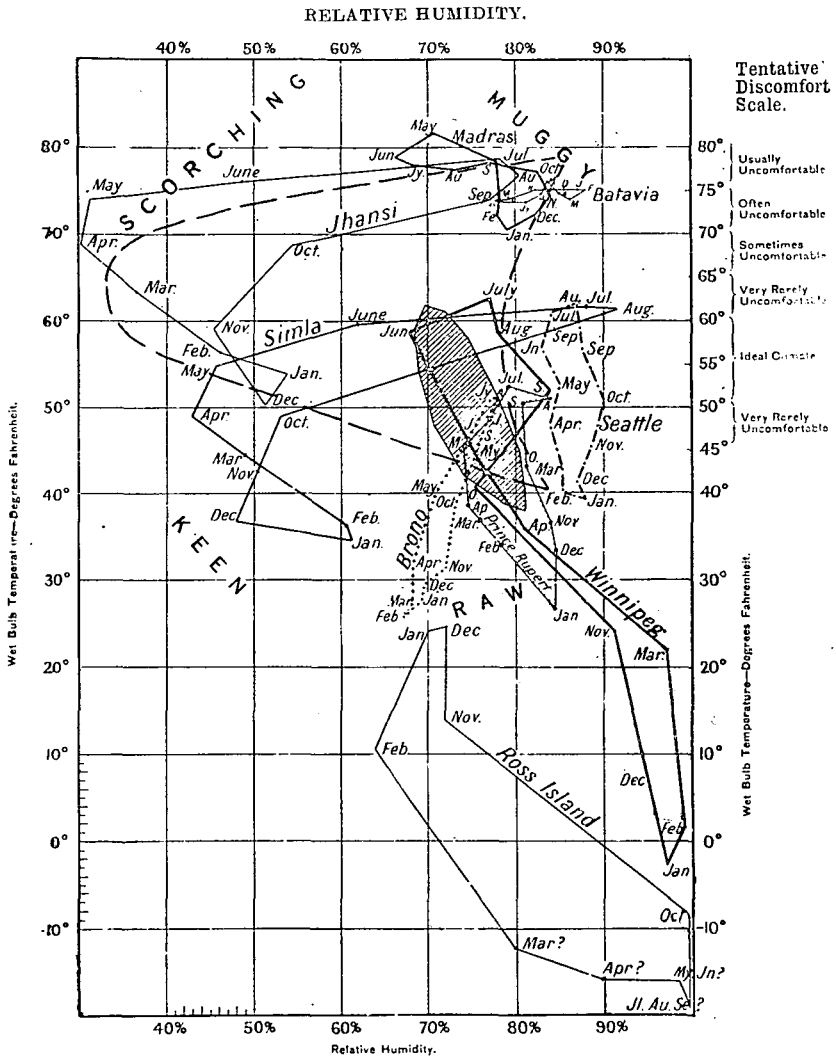
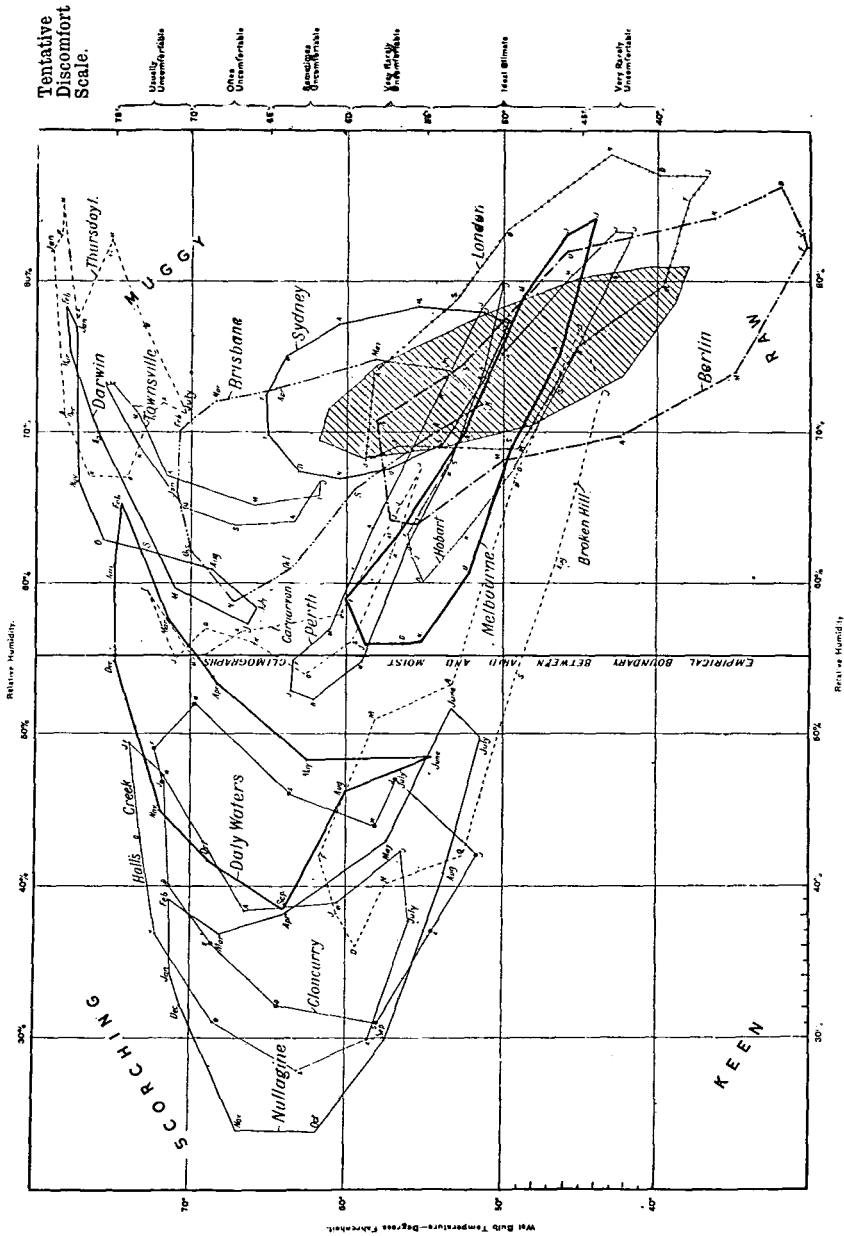


Fig 9



# TYPICAL CLIMOGRAPHS FOR AUSTRALIA.

The empirical boundary between arid and moist regions is given. (London and Berlin added for comparison.)



NOTE.—The shaded figure is the composite white race climograph based on twelve typical cities.  
Fig. 10.

In the same way the northern rains are largely due to the tropical cyclones which hover over northern Australia when the sun is overhead in the tropics, i.e. in summer. The northern summer rain-controls extend, however, barely as far south as Oodnadatta, South Australia, while the southern winter rain-controls normally extend north approximately to Farina, South Australia. Hence the great arid region of Australia is in the broad belt only occasionally favoured by either of these beneficial controls. This arid area extends from North-west Cape to Broken Hill, and includes thirty-seven per cent. of the area of the continent.

The dominating winds in this arid stretch have an easterly component, and, towards the north, merge of course into the permanent South-east Trade Winds. In the interior and in the western lands it is typically a drying wind, but in the east it blows from sea to land, and contributes largely to the heavier eastern rainfall. At the same time there is a special series of tropical storms which swing down the east coast from the north in autumn and winter, and give its definite character to that region.

Hence, speaking generally, there are four major rainfall regions. The summer rain region in the north, the winter rain region in the south, the uniform rain region in the east, and the arid region in the centre and middle west.

The uniform region may be defined as that which receives over one inch per month through eight months in the year. This uniform portion includes all east of a line from Cairns south to Wentworth, and thence west to Adelaide, and Bunbury, Western Australia. This region also includes almost all the timber areas in Australia, which are largely determined by the uniformity of the rain. Along these coasts, moreover, are the only regions where the evaporation is balanced by the rainfall. Hence the heavy tropical rains of the Northern Territory do not produce timber forests, for the six months' drought in winter prevents the growth of true tropical forests.

Fig. 5 shows how the rainfall varies in amount in season, in uniformity, and in reliability. Thus, considering rainfall alone, one can usefully distinguish seven regions, which may be arranged in order of their value for settlement somewhat as in the following table:—

TABLE X.—MAJOR RAINFALL REGIONS.

Class.	Sub-class.	Chief Localities.	Chief Products.
I. Uniform ...	1. With winter maximum	Riverina, Victoria. Tasmania, Albany	Timber, dairies, farming, sheep, wheat, vines.
.. ...	2. With summer maximum	Eastern Queensland, North-east of New South Wales*	Farms, sugar, sheep, cattle; also timber, dairies and sugar on coast.
II. Seasonal, but reliable	3. Moderate winter type	Swanland, W. Australia† ...	Wheat, sheep, vines.
..	4. Summer type ...	Kimberley, W. Australia and Coastlands, N. Territory	Cattle.
..	5. Arid winter type ...	Coolgardie to Broken Hill ...	Sheep.
III. Erratic ...	6. Summer only ...	Pilbarra, W. Australia, Macdonnells, N. Territory, Western Queensland	Sheep and Cattle.
.. ...	7. Arid ...	Central W. Australia and Inland S. Australia	Relatively empty, a few sheep and cattle stations only.‡

\* Type 3a (on Fig. 5) is too erratic to be classed with type 2. † The temperate and well-watered south-west corner of Western Australia. ‡ Mining is ignored.

**9. Climate and Production.**—The control of wheat and of cattle and sheep-raising by rainfall and temperature is considered very fully in Meteorological Bulletin No. 11,\* to which the reader is referred. On the maps in that bulletin it is shewn that cattle are chiefly raised in regions having more than twenty inches of rainfall per annum. Temperature has little effect. Sheep are very largely contained between the twenty and thirty-inch isohyets, though they are numerous between the ten and forty-inch isohyets. They do not extend so far north as the cattle; the hinterland of Broome, Western Australia, being the most northern of the important sheep areas. Wheat is grown almost entirely between the ten and twenty-inch isohyet. It is limited by temperature in the north, for very little is grown north of Nanango, in south-east Queensland, which has an average annual temperature of about 70° F.

**10. Potential Production in the Tropics.**—The two chief controls governing crops are, of course, temperature and rainfall, and the rain must stimulate growth at the proper season of the year. It is comparatively simple to express graphically the climatic conditions which are highly favourable for such crops as cotton, tea, coffee, rubber, etc. Such graphs have been named *hythergraphs*† by the writer of this article, and they are illustrated in Figs. 6 and 7.

For each locality a table of the twelve average monthly temperatures and rainfalls is consulted. These twelve points are plotted on a chart with the proper co-ordinates. Thus, each locality is represented by a twelve-sided polygon—the hythergraph—which accurately represents the march of temperature and rainfall throughout the year. In Fig. 6 are graphs for tropical Australian towns—Wyndham, Darwin, Rockhampton, Longreach, Carnarvon, and Alice Springs. All these fit within a slipper-shaped boundary, which represents the general range of climate in Northern Australia. Herberton, on the elevated Atherton Plateau, is seen to be quite exceptional in its climate.

The application of this graph is seen in Fig. 7. Here are plotted the graphs for such places as Lahore (which is a very important district for summer wheat); Calcutta, a typical rice region; Nagpur, famous for cotton, etc., etc. It will be seen that all these graphs can be closely paralleled on the north coast of Australia (see Fig. 6). No account is taken of soils (which lie outside the writer's province), but it may be assumed that there are many acres of suitable soil near the permanent rivers flowing to the north coast.

Such crops as tea and coffee need cooler regions, and there are few such in the tropics. It will be seen that the hythergraph for Herberton indicates that the wetter portion of the Atherton Plateau is very suitable for these crops. Many experimental plots have, of course, been devoted to new products on various research farms in Australia. This climatological study will, however, support their introduction on a larger scale.

**11. Wet Bulb Temperatures and Comfort.**—It is generally accepted by physiologists that the best available instrument for testing the suitability of a region as regards habitability is the wet bulb thermometer. Professor J. W. Gregory quotes 78° F. wet bulb as a limit—"above which continuous hard work becomes impracticable." Unfortunately for Australia 78° F. wet bulb is quite common in summer along our northern coast, but this statement (by a strong supporter of tropical white settlement) will free the following deductions from a charge of exaggeration.

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\* "The Climatic Control of Production," by Griffith Taylor, 1913.

† *Hyetos*, rain; and *therme*, heat. See "The Australian Environment."

For reasons which are elaborated in Meteorological Bulletin No. 14,\* 70° F (wet bulb) has been adopted as the limit of comfort for our race. This means that when the average wet bulb remains above 70° F. day after day for a long period, conditions are not favourable for close white settlement. An open-air active occupation such as stock-riding has little to fear; but strenuous field labour, sedentary indoor life, and especially domestic work and the care of young children, cannot be carried on under favourable conditions at present with high wet bulb temperatures of this order.

It is well known that February is usually the most oppressive month both in Sydney and Melbourne. The average wet bulb temperatures for this month are, however, only 65° F. and 60° F. respectively, while at Melbourne the extreme reading for any day in the year rarely exceeds 75° F.

Brisbane has two months with an average wet bulb over 70° F., and conditions become continuously less attractive as one journeys up the coast. At Mackay such high wet bulbs obtain for six months in the year; at Cooktown for ten, and at Thursday Island all the year round. These isopleths are plotted on Fig. 8. It will be noticed that it is precisely the low-lying river alluvials of the north which are adversely affected. Here irrigation may ultimately be possible, for there are many fine rivers running into the northern seas. But it is doubtful if a white farming community will settle in these agricultural areas for very many years.†

**12. Comparative Climatology and the Climograph.**—Just as heat and moisture determine the well-being of plant life, so do they control the comfort of the human race. But in place of the dry bulb and rainfall, the wet bulb and humidity indicate more directly the effect on man's feelings. Indeed wet bulb temperatures have been termed "sensible" temperatures for this reason. Humidity is a better factor than rainfall—for the average rainfall at a place often remains at zero for many months of the year, while the humidity rarely falls below 40 per cent., and shews the sequence of climatic changes much more clearly.

A graphical representation, akin to the hythergraph for crops, can therefore be drawn from the twelve monthly means of humidity and wet bulb at the required locality. This the writer has named the *climograph*, and it is being accepted generally as giving a clear picture of the climatic changes. (See Bulletin 14.)

In Fig. 9 are shown types of all the chief climates of the world, while at the side is a tentative scale of discomfort depending on the wet bulb readings alone.

As a criterion enabling one to judge if a locality is well suited for close white settlement, a composite climograph is given, based on averages from twelve centres of Anglo-Saxon settlement. This is the cigar-shaped climograph which is shaded in Fig. 9.

Unhealthy regions near the Equator with a uniformly muggy climate are represented by Madras and Batavia. Scorching dry regions—with, however, monsoonal rains in midsummer—are illustrated by Jhansi in Central India. Simla shows one of the keen winter types, though it is also affected by the monsoons in summer. London (see Fig. 9) agrees almost exactly with the type white climograph. Seattle, United States of America, is similar, but wetter. Bronno, near Trondhjem, and Prince Rupert, British Columbia, illustrate raw conditions. Winnipeg and Ross Island, Antarctica, extend far below the temperatures of normal white settlement.

Australian localities have a fairly wide range, as will have been gathered from the first section of this article. There are no "keen" or "raw" climates, but "scorching" and "muggy" types are but too well represented. The more important places are all given

\* "The Control of Settlement by Humidity and Temperature," by Griffith Taylor, Melbourne, 1916. † *Vide* "Settlement in the Tropics," by Griffith Taylor. Royal Geographical Society of Queensland, 1918.

on Fig. 10. The cluster of climographs covers an area curiously resembling an arrow-head, and this outline is inserted on the general chart, Fig. 9. (For other continents the climographs would cover a much larger area of the chart.)

The cooler localities in Fig. 10 have the major axes of their climographs running north-west—which means dry summers and wet winters. The hotter localities have the major axis running north-east—which means they are in the monsoon region, with wet summers. The inland localities have low humidity, and so appear at the left of the chart, usually as crescents, which fact indicates that they have a little winter rain and a little summer rain. The climographs for east coast localities (Sydney, Brisbane, etc.) are much less elongated, which implies that spring differs from autumn more than in the other portions of Australia; in fact, the special autumn rainfall is indicated by the high humidity, as we should expect.

The Tentative Scale of Discomfort at the side of the chart will enable the reader to see the conditions in any month at any of the localities at a glance. He can also compare the localities *inter se*; and by reference to the original memoir (Bulletin 14, where seventy climographs are charted) with most other regions of the world.

13. **Settlement in the Tropics.**—The chief object of this article is to focus attention on the climatic difficulties which hinder settlement in the unoccupied regions of Australia. Space does not permit of the insertion of further illustrative climographs, but the following table seems to indicate that our northern lands are not well suited for *close* white settlement. In the table the foreign homoclime (similar region) appears in each case at the right of the Australian locality. (See also Fig. 1.)

TABLE XI.—TROPICAL AUSTRALIAN HOMOCLIMES.

AUSTRALIAN LOCALITY AND A FOREIGN HOMOCCLIME.													
Locality.	Temperature.			Rainfall.			Locality.	Temperature.			Rainfall.		
	Average.	Hottest Month.	Coldest Month.	Average.	Wettest Month.	Driest Month.		Average.	Hottest Month.	Coldest Month.	Average.	Wettest Month.	Driest Month.
Broome ...	79.8	85.9	70.3	23	6	0	Banana, R. Congo	77.9	81.5	72.5	29	6	0
Nullagine	79.8	85.9	70.3	23	3	0	Colima, S.W. Mexico	76.1	80.0	69.6	34	7	0
Carnarvon	71.0	80.0	60.0	9	3	0	Olukonda, S.W. Africa	72.0	77.0	51.0	19	5	0
Wiluna ...	70.0	85.0	52.0	10	2	0	Windhoek, S.W. Africa	67.0	74.0	56.0	15	4	0
Darwin ...	83.0	84.0	77.0	62	15	0	Cuttack, E. of India	80.0	87.0	70.0	55	12	0
Daly Waters	80.0	87.0	69.0	27	6	0	Quixeramobim, Brazil	81.0	83.0	79.0	27	6	0
Alice Springs	70.0	84.0	53.0	11	2	0	Biskra, Algeria	69.0	89.0	51.0	10	1	0
Townsville	78.0	82.0	66.0	49	11	0	Calcutta	78.0	82.0	65.0	60	12	0
Wyndham	84.5	88.3	76.2	27	8	0	Tinnevely	84.3	89.5	73.5	28	9	0

Assuming that these and similar parallels are correct, it will be seen that the analogous regions (homoclimes) for Darwin are settled by Siamese, Indians and Bantu Blacks, and in Northern Brazil by half-caste Portuguese. Wyndham (as stated earlier) has for homoclime only the extreme tip of India. Broome's homoclime is inhabited by Bantu, and Townsville's (Rio de Janeiro) settled by the Portuguese.

Only in the inland country like that around Wiluna or Daly Waters, is there a homoclime even sparsely settled by North Europeans. This is the recently conquered German territory of South-west Africa.

In Eastern Brazil is a most interesting series of settlements; but the Germans have settled in the homocline of Grafton; the Italians in Brazilian "Brisbane," and only the Spanish immigrants touch even the cooler tropical regions.

This brief but comprehensive climatological study shews that Australia is ahead in tropical settlement. Her white sugar-growers around Cairns and Mourilyan are the advance guard of the white farmer in the tropics.

Limitations of space permit merely an allusion to one great asset in Australian northern lands—their freedom from yellow fever, and comparative immunity from beri-beri and malaria. There seems good reason to hope that the two latter will eventually disappear.

What then is indicated as regards the immediate future of the empty northern lands of Australia? The country is essentially a pastoral one—it is not an agricultural region. Apart from questions of labour and market, the lowlands west of Cooktown do not appear to be suitable for white farming at present.

A consideration of progress in Algeria and similar regions indicates that conditions in the Australian tropics may become more acceptable to white settlers in the future. In four or five generations it is possible that the native-born may become thoroughly acclimatised in the sub-tropical areas, and will then gradually spread in considerable numbers into the hotter and more humid zones to the north.

## SECTION IV.

## POPULATION.

## § 1. Commonwealth Population—Its Distribution and Fluctuation.

1. **Present Population.**—The estimated population of the several States of the Commonwealth at the end of 1901 and of each of the five years 1913-17 is shewn in the following table :—

## POPULATION OF COMMONWEALTH, ON 31st DECEMBER, 1901 and 1913-17.

Year.	States.						Territories.		Commonwealth
	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	North-eastern.	Federal. (a)	
MALES.									
1901	720,840	608,436	282,291	180,440	117,885	90,945	3,999	...	2,004,836
1913	962,053	706,943	356,613	221,605	180,747	104,476	2,995	a 1,093	2,536,530
1914	966,675	712,594	364,526	220,550	179,188	103,590	3,252	1,056	2,551,431
1915	953,160	693,650	359,541	212,080	171,304	101,761	3,687	957	2,496,140
1916	923,603	666,036	344,557	201,998	159,998	99,839	3,839	1,194	2,401,064
1917	929,306	671,382	351,693	201,433	158,701	101,520	3,886	1,080	2,419,001
FEMALES.									
1901	654,615	601,464	224,430	178,890	75,716	84,288	674	...	1,820,077
1913	869,663	705,171	303,545	218,442	139,937	97,199	677	a 895	2,335,529
1914	894,847	718,073	312,181	221,140	143,830	97,826	721	903	2,389,521
1915	917,259	725,526	319,134	226,205	146,712	99,264	876	872	2,435,848
1916	934,941	732,848	324,910	230,711	148,808	100,086	928	1,029	2,474,261
1917	950,643	739,622	336,839	234,781	150,722	101,657	1,022	1,024	2,516,310
TOTAL.									
1901	1,375,455	1,209,900	506,721	359,330	193,601	175,233	4,673	...	3,824,913
1913	1,831,716	1,412,119	660,158	440,047	320,684	201,675	3,672	a 1,988	4,872,059
1914	1,861,522	1,430,667	676,707	441,690	323,018	201,416	3,973	1,959	4,940,952
1915	1,870,419	1,419,176	678,675	438,285	318,016	201,025	4,563	1,829	4,931,988
1916	1,858,544	1,398,884	669,467	432,709	308,806	199,925	4,767	2,223	4,875,325
1917	1,879,949	1,411,004	688,532	436,214	309,423	203,177	4,908	2,104	4,935,311

(a) Part of New South Wales prior to 1911.

2. **Growth of Population.**—(i.) 1788 to 1824. From 1788, when settlement first took place in Australia, until December 1825, when Van Diemen's Land (now Tasmania) became a separate colony, the whole of the British Possessions in Australia were regarded as one colony, viz., that of New South Wales. The population during this period increased very slowly, and at the end of 1824 had reached only 48,072.

COMMONWEALTH POPULATION—ITS DISTRIBUTION AND FLUCTUATION. 103

The population with which settlement in Australia was inaugurated, and that at the end of each year until 1824, are as follows:—

POPULATION OF COMMONWEALTH ON 31st DECEMBER, 1788 to 1824.

Year.	Males.	Females.	Total.	Year.	Males.	Females.	Total.
1788 <sup>a</sup>	...	...	1,035	1806	5,889	2,521	7,910
1788	...	...	859	1807	5,939	2,855	8,794
1789	...	...	645	1808	6,822	3,441	10,263
1790	...	...	2,056	1809	7,618	3,942	11,560
1791	...	...	2,873	1810	7,585	3,981	11,566
1792	...	...	3,264	1811	7,697	4,178	11,875
1793	...	...	3,514	1812	8,132	4,498	12,630
1794	...	...	3,579	1813	9,102	4,855	13,957
1795	...	...	3,466	1814	9,295	4,791	14,086
1796	2,953	1,147	4,100	1815	9,848	5,215	15,063
1797	3,160	1,184	4,344	1816	11,690	5,863	17,553
1798	3,367	1,221	4,588	1817	14,178	7,014	21,192
1799	3,804	1,284	5,088	1818	17,286	8,573	25,859
1800	3,780	1,437	5,217	1819	21,366	10,106	31,472
1801	4,372	1,573	5,945	1820	23,784	9,759	33,543
1802	5,208	1,806	7,014	1821	26,179	9,313	35,492
1803	5,185	2,053	7,238	1822	27,915	9,449	37,364
1804	5,313	2,285	7,598	1823	30,206	10,426	40,632
1805	5,395	2,312	7,707	1824	36,871	11,201	48,072

(a) On 26th January. Recent research by Dr. J. F. Watson, now Editor of the Historical Records of Australia, goes to show that the original nucleus was 1024 persons.

(ii.) 1825 to 1858. The period extending from 1825 to 1859 witnessed the birth of the colonies of Tasmania (then known as Van Diemen's Land), Western Australia, South Australia, Victoria, and Queensland. The years in which these came into existence as separate colonies were as follows:—Tasmania, 1825; Western Australia, 1829; South Australia, 1834; Victoria, 1851; Queensland, 1859.

The estimated population of the Commonwealth at the end of each year of this transition period is as follows:—

POPULATION OF COMMONWEALTH ON 31st DECEMBER, 1825 to 1858.

Year.	Males.	Females.	Total.	Year.	Males.	Females.	Total.
1825	40,288	12,217	52,505	1842	153,758	87,226	240,984
1826	41,289	12,593	53,882	1843	158,846	92,002	250,848
1827	43,053	13,247	56,300	1844	165,034	99,253	264,287
1828	44,778	13,419	58,197	1845	173,159	105,989	279,148
1829	46,946	14,988	61,934	1846	181,342	111,907	293,249
1830	52,885	17,154	70,039	1847	190,265	118,532	308,797
1831	57,037	18,944	75,981	1848	201,612	130,716	332,328
1832	62,254	21,683	83,937	1849	221,978	151,384	373,362
1833	71,669	26,426	98,095	1850	238,683	166,673	405,356
1834	76,259	29,297	105,556	1851	256,975	180,690	437,665
1835	81,929	31,425	113,354	1852	304,126	209,670	513,796
1836	89,417	35,703	125,120	1853	358,203	242,789	600,992
1837	94,881	39,607	134,488	1854	414,337	280,580	694,917
1838	105,271	46,597	151,868	1855	470,118	323,142	793,260
1839	115,480	54,459	169,939	1856	522,144	354,585	876,729
1840	127,306	63,102	190,408	1857	574,800	395,487	970,287
1841	144,114	76,854	220,968	1858	624,380	426,448	1,050,828



# 104 COMMONWEALTH POPULATION—ITS DISTRIBUTION AND FLUCTUATION.

(iii.) 1859 to 1917. From 1859, the year in which Queensland came into existence as a separate colony, until the beginning of 1901, when the Commonwealth of Australia was inaugurated under the provisions of the Commonwealth Constitution Act, Australia consisted of six States, practically independent of each other in all matters of government. During this period, the population of the Commonwealth increased from 1,050,828 at the end of 1858 to 3,765,339 on the 31st December, 1900. The particulars for this period are given in the table hereunder.

During the seventeen years that have elapsed since the federation of the States was effected the population of the Commonwealth has increased by 1,169,972, from 3,765,339 on 31st December, 1900, to 4,935,311 on 31st December, 1917. See table hereunder:—

POPULATION OF COMMONWEALTH ON 31st DECEMBER, 1859 to 1917.

Year.	Males.	Females.	Total.	Year.	Males.	Females.	Total.
1859	644,376	452,929	1,097,305	1889	1,649,094	1,413,383	3,062,477
1860	668,560	477,025	1,145,585	1890	1,692,831	1,458,524	3,151,355
1861	669,373	498,776	1,168,149	1891	1,736,617	1,504,368	3,240,985
1862	683,650	523,268	1,206,918	1892	1,766,772	1,538,981	3,305,753
1863	704,259	555,033	1,259,292	1893	1,791,815	1,570,080	3,361,895
1864	740,433	584,750	1,325,183	1894	1,824,217	1,602,543	3,426,760
1865	773,278	616,765	1,390,043	1895	1,855,539	1,636,082	3,491,621
1866	800,648	643,307	1,443,955	1896	1,887,174	1,665,924	3,553,098
1867	819,127	664,721	1,483,848	1897	1,917,460	1,700,323	3,617,783
1868	849,272	690,280	1,539,552	1898	1,937,629	1,727,086	3,664,715
1869	875,139	717,018	1,592,157	1899	1,959,074	1,756,914	3,715,988
1870	902,494	745,262	1,647,756	1900	1,976,992	1,788,347	3,765,339
1871	928,918	771,970	1,700,888	1901	2,004,836	1,820,077	3,824,913
1872	947,422	795,425	1,742,847	1902	2,028,008	1,847,310	3,875,318
1873	972,907	821,613	1,794,520	1903	2,045,144	1,871,448	3,916,592
1874	1,001,096	848,296	1,849,392	1904	2,072,783	1,901,367	3,974,150
1875	1,028,489	869,734	1,898,223	1905	2,100,118	1,932,859	4,032,977
1876	1,061,477	897,202	1,958,679	1906	2,126,730	1,964,755	4,091,485
1877	1,102,340	928,790	2,031,130	1907	2,160,213	2,001,509	4,161,722
1878	1,132,573	959,591	2,092,164	1908	2,193,981	2,038,297	4,232,278
1879	1,168,781	993,562	2,162,343	1909	2,242,215	2,081,745	4,323,960
1880	1,204,514	1,027,017	2,231,531	1910	2,296,308	2,128,775	4,425,083
1881	1,247,059	1,059,677	2,306,736	1911	2,377,920	2,190,787	4,568,707
1882	1,289,892	1,098,190	2,388,082	1912	2,466,968	2,266,391	4,733,359
1883	1,357,423	1,148,313	2,505,736	1913	2,536,530	2,335,529	4,872,059
1884	1,411,996	1,193,729	2,605,725	1914	2,551,431	2,389,521	4,940,952
1885	1,460,394	1,234,124	2,694,518	1915	2,496,140	2,435,848	4,931,988
1886	1,510,954	1,277,096	2,788,050	1916	2,401,064	2,474,261	4,875,325
1887	1,559,118	1,322,244	2,881,362	1917	2,419,001	2,516,310	4,935,311
1888	1,610,548	1,371,129	2,981,677				

It will be seen from the foregoing tables that the population of Australia attained its first million in 1858, seventy years after settlement was first effected; its second million nineteen years later, in 1877; its third million twelve years later, in 1889; and its fourth million sixteen years later, in 1905. The fifth million was expected in 1915, but owing to the war and the consequent dispatch of men out of Australia this result has not yet been attained. As a matter of fact through the retardation of immigration and the departure of troops consequent upon the war, the total population of Australia diminished during 1915 by 8964 persons. Taking the sexes separately, there was a decrease of 55,291 males and an increase of 46,327 females during the year. In 1916 there was a further decrease of 56,663, the males decreasing by 95,076, and the females increasing by 38,413. In 1917 there was a recovery of 59,986 in the total population, made up of 17,937 males and 42,049 females.

The growth of the total population of the Commonwealth generally, and of each State therein, is graphically shewn on page 145, and of each sex considered separately on pages 146 and 147.

## § 2. Influences affecting Growth and Distribution of Population.

**1. Mineral Discoveries.**—The discovery of gold in Australia in 1851 was undoubtedly one of the most influential factors in bringing about a rapid settlement of the country. Its effect may be gauged by a comparison of the increase during the ten years preceding, with that during the ten years succeeding the discovery. From 31st December, 1840, to 31st December, 1850, the increase was only 214,948 (viz., from 190,408 to 405,356). The rush of people to the newly-discovered goldfields during the succeeding decennium caused an increase of no less than 740,229, the population advancing to 1,145,585 on 31st December, 1860. In 1861, owing to the opening up in that year of the New Zealand goldfields, a rush of population from Australia set in, the result being that the net increase of population of the Commonwealth, which in 1855 amounted to 98,343, and even in 1860 was as much as 48,280, fell in 1861 to 22,564. In fact, during the year 1861 the departures from Australia exceeded the arrivals by 6,283, the gain of 22,564 being due to the births exceeding the deaths by 28,847.

In more recent years the gold discoveries of Western Australia in 1886 and subsequent years, led to such extensive migration to that State, that its population, which on 31st December, 1885, amounted to only 35,959, increased in 32 years by no less than 273,464, totalling 309,423 on 31st December, 1917. In this case, however, the additions to the population of the western State were largely drawn for some years from those of the eastern States, so that the actual gain of population to the Commonwealth was relatively slight.

**2. Pastoral Development.**—Very early in the colonisation of Australia it was recognised that many portions were well adapted for pastoral pursuits, and pastoral developments have led to a considerable distribution of population in various directions. As the numbers engaged in connection therewith, compared with the value of the interests involved, are relatively small, and as pastoral occupancy tends to segregation rather than aggregation of population, the growth of the pastoral industry is but slightly reflected in the population statistics of the Commonwealth.

**3. Agricultural Expansion.**—At the present time the area annually devoted to crops in the Commonwealth is over 16½ millions of acres. Although considerable in itself, this area, viewed in relation to the total area of the Commonwealth, is relatively small, and represents less than 1 per cent. of the total area. Per head of population of the Commonwealth the area under crop, however, is about 3½ acres, a fairly high amount when allowance is made for the recency of Australian settlement. About 84½ per cent. of the area under crop in 1916-17 was devoted to the production of wheat and hay, which for profitable production in Australia require a considerable area in the one holding. Thus, on the whole, the agricultural districts of Australia are somewhat sparsely populated, though in a less marked degree than is the case in the pastoral areas.

**4. Progress of Manufacturing Industries.**—One direct effect of the development of manufacturing industries is the concentration of population in places offering the greatest facilities for the production of the particular commodities. In Australia, where manufacturing industries are as yet in their infancy, the tendency throughout has been to concentrate the manufacturing establishments in each metropolis. This has accentuated the growth of the capital cities, which growth when compared with that of the rest of the country, appears somewhat abnormal.

**5. Influence of Droughts.**—The droughts, which at times so seriously affect the agricultural and pastoral prospects of Australia, have a marked influence on the distribution of population. Districts, which in favourable seasons are fairly populous, occasionally in times of drought become more or less depopulated until the return of better conditions. This movement, however, ordinarily affects only the internal distribution of the population and not the total, but severe drought may even make its

influence felt in the statistics of the total population of Australia. Thus in the case of the drought of 1902-3, the departures from the Commonwealth exceeded the arrivals for the two years 1903 and 1904 by 12,859. It may be noted also, that for the former of these years, the natural increase of population by excess of births over deaths was abnormally low, being only 51,150, as compared with 54,698 in the preceding and 60,541 in the succeeding year. As the solution of the problem of dealing with droughts is advanced, their influence will be less marked.

6. *Other influences.*—(i.) *Commercial Crises.* The effect on population of a commercial crisis, such as that which occurred in Australia in the early years of the final decade of the last century, is clearly indicated on comparing the migration statistics of the Commonwealth for the five years 1887-91 with those for the five years 1892-96. During the former period, the arrivals in the Commonwealth exceeded the departures by no less than 146,872. In the latter period, the corresponding excess amounted to only 2064.

(ii.) *War.* The war in South Africa has left its impress on the population statistics of the Commonwealth, the departures during 1899 and 1900 exceeding the arrivals for the same period by 10,546. A similar but much more marked result is being shewn in connection with the European war, which, at the time of writing, is still in progress. Thus, for the four years 1914, 1915, 1916 and 1917, taken together, the departures have exceeded the arrivals by a total of no less than 264,265.

A reference to the graphs of population on pages 145 to 150 will illustrate the preceding observations.

### § 3. Special Characteristics of Commonwealth Population.

1. *Sex Distribution.*—In respect of the relative proportions of the sexes in its population, Australia has, since the first settlement of the continent in 1788, differed materially from the older countries of the world. In the latter, the populations have, in general, grown by natural increase, and their composition usually reflects that fact, the numbers of males and females being in most countries approximately equal, with a more or less marked tendency, however, for the females to slightly exceed the males. The excess of females arises from a variety of causes, amongst which may be mentioned—(a) higher rate of mortality amongst males; (b) greater propensity on the part of males to travel; (c) the effects of war; (d) employment of males in the army, navy, and mercantile marine; (e) preponderance of males amongst emigrants. On the other hand, the last-mentioned cause has tended naturally to produce an excess of males in Australia, since the majority of those emigrating to Australia have been males. The circumstances under which the colonisation of Australia was first undertaken, and the remoteness of this country from Europe, have combined to accentuate this feature.

There is little doubt that the continent presented few attractions to the explorers who visited its shores, mainly on the west and north, during the sixteenth, seventeenth, and early part of the eighteenth centuries, and it was only when the Declaration of Independence of the United States, in 1776, closed to the British prison authorities the North American plantations, which had previously been used as receptacles for the deportation of convicts, that the overcrowding of the gaols caused them to consider the advisability of converting the great southern continent into a convict settlement. This idea was put into practice in 1787, when the first consignment left England, arriving in Sydney Cove on the 26th January, 1788. Reports concerning the number of persons actually landed are conflicting, but it appears that the total may be set down approximately at 1035, including the military. Details as to the sexes are not available, but the males must have largely preponderated. Indeed, nearly nine years later, on the 31st December, 1796, in a total population of 4100, there was an excess of 44 males in every 100 of the population.

The subsequent progress of Australia resulting from extensive mineral discoveries and the development of its great natural resources, pastoral, agricultural, forestal, etc.,

have tended to attract male rather than female immigrants, particularly in view of the distance from the principal centres of European population. Even at the Census of 3rd April, 1911, after more than 123 years of settlement, there was an excess of 3.84 males in every 100 of the population, and this notwithstanding the equalising tendency due to additions to the population by means of births and to deductions therefrom by the deaths of immigrants.

In the second issue of this publication, on pages 163 to 165, an extended table was published shewing the masculinity of the population of each of the States for each year from 1796 to 1907. In the fifth issue, on page 123, the figures in this table for the years 1901-7 were modified to agree with the corrected estimates of the population, consequent on the Census of 3rd April, 1911. The figures given in the tables mentioned represent the number of males to each 100 females.

A more scientific determination of masculinity, however, may be obtained by computing the ratio of the excess of males over females to the total population. This ratio expressed as a percentage has now been adopted by the Commonwealth Bureau of Census and Statistics as the "masculinity" of the population, and the ratios so computed are given hereunder for intervals of 5 years from 1800 to 1915 and for the two years 1916 and 1917 for the Commonwealth and each of its component States and Territories:—

### MASCULINITY OF THE POPULATION, 1800 to 1917.

(EXCESS OF MALES OVER FEMALES PER 100 OF POPULATION.)

Year.	States.						Territories.		C'wealth.
	N.S.W. (a)	Victoria.	Q'land.	S. A. (b)	W. Aust.	Tasmania	North'm (c)	Federal (d)	
1800	44.91	...	...	...	...	...	...	...	44.91
1805	40.00	...	...	...	...	...	...	...	40.00
1810	31.16	...	...	...	...	...	...	...	31.16
1815	30.76	...	...	...	...	...	...	...	30.76
1820	41.81	...	...	...	...	...	...	...	41.81
1825	53.00	...	...	...	...	54.72	...	...	53.46
1830	52.06	...	...	...	49.66	49.17	...	...	51.02
1835	45.71	...	...	...	31.10	43.13	...	...	44.55
1840	34.25	...	...	13.08	24.10	39.31	...	...	33.72
1845	21.05	...	...	14.07	20.07	36.63	...	...	24.06
1850	16.13	...	...	12.72	21.51	28.44	...	...	17.76
1855	11.14	30.41	...	0.31	31.87	10.57	...	...	18.53
1860	13.53	22.74	19.88	2.47	25.07	10.56	...	...	16.72
1865	9.12	12.89	22.62	4.36	26.98	7.59	...	...	11.26
1870	9.29	9.74	20.10	2.84	23.42	6.09	...	...	9.54
1875	8.71	6.74	20.83	3.49	19.55	5.41	...	...	8.36
1880	9.28	4.95	17.53	6.69	14.92	5.53	...	...	7.95
1885	9.89	5.04	18.02	5.02	15.06	5.09	...	...	8.40
1890	8.28	5.06	13.87	4.12	18.98	5.61	...	...	7.43
1895	6.45	2.55	12.34	2.46	11.72	3.92	...	...	6.28
1900	5.28	0.61	11.24	1.98	22.34	3.83	76.57	...	5.01
1905	5.24	-1.17	9.81	0.08	17.13	2.96	66.49	...	4.15
1910	4.41	-0.65	8.69	1.54	14.13	2.03	65.89	...	3.79
1915	1.92	-2.26	5.95	-3.19	7.73	1.24	61.60	4.65	1.22
1916	-0.61	-4.71	2.93	-6.86	3.62	-0.12	61.06	7.42	-1.50
1917	-1.13	-4.84	2.16	-7.64	2.58	-0.07	58.35	2.66	-1.97

(a) Including Federal Territory prior to 1911. (b) Including Northern Territory prior to 1900.  
(c) Included with South Australia prior to 1900. (d) Part of New South Wales prior to 1911.

The influence of the war will be observed in the decline of the masculinity for each of the States and the Commonwealth, and the introduction of negative results in the cases of South Australia, New South Wales, Tasmania and the Commonwealth indicating an excess of females there, as well as in Victoria, where this phenomenon was in evidence as far back as 1905.

The curious inequalities of the increases in the number of males and in the number of females for the Commonwealth as a whole, and for the individual States respectively, will be seen by referring to the graphs on pages 146 and 147.

The significance of the rates of masculinity shewn in the above table will perhaps be better understood by a comparison with the corresponding information for other countries. This has been made in the next table, which shews, for some of the principal countries of the world for which such particulars are available, the masculinity of the population according to the most recent statistics:—

#### MASCULINITY OF THE POPULATION OF VARIOUS COUNTRIES.

Country.	Year.	Excess of Males over Females in each 100 of population.	Country.	Year.	Excess of Males over Females in each 100 of population.
Canada ... ..	1911	6.07	Prussia ... ..	1910	—1.17
Serbia ... ..	1910	3.27	German Empire ...	1910	—1.80
United States of America	1910	2.93	Switzerland ... ..	1910	—1.66
India (Feudatory States)	1911	2.88	New Zealand ... ..	1917	—1.73
British India ... ..	1911	2.24	France ... ..	1911	—1.74
Bulgaria ... ..	1910	1.75	Italy ... ..	1911	—1.81
Japan ... ..	1916	1.06	Austria ... ..	1912	—1.85
Rumania ... ..	1913	1.05	Australia ... ..	1917	—1.97
Greece ... ..	1907	0.68	Sweden ... ..	1916	—2.11
Poland (Russian) ... ..	1914	0.41	Spain ... ..	1910	—2.84
Ireland ... ..	1911	—0.14	Denmark ... ..	1916	—2.95
Belgium ... ..	1912	—0.76	Scotland ... ..	1911	—3.07
Netherlands ... ..	1913	—0.81	England and Wales ..	1911	—3.27
Hungary ... ..	1910	—0.94	Norway ... ..	1910	—3.36
Russia (European) ... ..	1914	—1.05	Portugal ... ..	1911	—5.08

NOTE.—The sign — denotes excess of females over males in each 100 of population.

2. **Age Distribution.**—The causes which operated to bring about an excess of males in the population of the Commonwealth were equally effective in rendering the age distribution essentially different for many years from that of older countries. The majority of the immigrants, whether male or female, were in the prime of life, and as the Australian birth-rate in earlier years was a comparatively high one, the effect produced was a population in which the proportion of young and middle-aged persons was somewhat above, and the proportion for advanced ages somewhat below the normal. With the progress of time, however, the age distribution for Australia has fallen more and more into line with that for the older countries, and now, except in shewing a lower proportion at old age and a slightly higher at young ages, does not differ essentially therefrom.

Thus in the Commonwealth at the Census of 3rd April, 1911, the age distribution of the population was as shewn in the table hereunder; that for England and Wales for the same Census is given also for the sake of comparison:—

#### AGE DISTRIBUTION OF POPULATION, COMMONWEALTH, AND ENGLAND AND WALES IN 1911.

Age Group.	Population of COMMONWEALTH, 3rd April, 1911.	Percentage on Total Population.	Population of ENGLAND and WALES, 3rd April, 1911.	Percentage on Total Population.
Under 15 ... ..	1,409,823	31.65	11,050,867	30.63
15 and under 65 ... ..	2,854,753	64.08	23,141,109	64.16
65 and upwards ... ..	190,429	4.27	1,878,516	5.21
Total ... ..	4,455,005	100.00	36,070,492	100.00

During the past 50 years, the age distribution of the Australian population has varied considerably, as will be seen from the following table, which gives for each sex the proportion per cent. of the total population in the age groups "under 15," "15 and under 65," and "65 and over." The figures upon which these percentages have been computed are those furnished by the Censuses of the several States and the Commonwealth Census of 1911. Those for 1861 include the results of the Western Australian Census of 1859, while those for 1871 include the results of the Western Australian and Tasmanian Censuses of 1870 :—

AGE DISTRIBUTION OF COMMONWEALTH POPULATION, 1861 to 1911.

Census Year	Males.				Females.				Persons.			
	Under 15 Years.	15 and under 65.	65 and over.	Total	Under 15 Years.	15 and under 65.	65 and over.	Total.	Under 15 Years.	15 and under 65.	65 and over.	Total
	%	%	%	%	%	%	%	%	%	%	%	%
1861	31.41	67.42	1.17	100	43.03	56.20	0.77	100	36.28	62.72	1.00	100
1871	38.84	59.11	2.05	100	46.02	52.60	1.38	100	42.09	56.17	1.74	100
1881	36.37	60.85	2.78	100	41.89	56.07	2.04	100	38.91	58.65	2.44	100
1891	34.77	62.02	3.21	100	39.36	58.08	2.56	100	36.90	60.20	2.90	100
1901	33.87	61.82	4.31	100	36.50	59.85	3.65	100	35.12	60.88	4.00	100
1911	30.84	64.82	4.34	100	32.52	63.28	4.20	100	31.65	64.08	4.27	100

The excess of males over females, which existed prior to the war, was found mainly in ages of 21 and upwards. In the total population under the age of 21 there was, at the date of the last Census, an excess of males over females amounting to less than 1.3 in each 100 of population, while in that aged 21 and upwards the excess of males over females was more than 5.8 in each 100 of population.

**3. Race and Nationality.**—(i.) *Constitution of Australia's Population.* As regards race, the population of the Commonwealth may be conveniently divided into two main groups, one comprising the aboriginal natives of Australia, and the other the various immigrant races which, since the foundation of settlement in 1788, have made the Commonwealth their home. Under the head of "immigrant races" would, of course, be included not only those residents of Australia who had been born in other countries, but also their descendants born in Australia.

(a) *Aboriginals.* It would appear that the aboriginal population of Australia was never large, and that the life led by them was, in many parts of the country, a most precarious one. With the continued advance of settlement the numbers have shrunk to such an extent that in the more densely populated States they are practically negligible. Thus, at the Census of 1911 the number of full-blooded aboriginals who were employed by whites or were living in proximity to settlements of whites was stated to be only 19,939. In some cases, however, more particularly in Queensland, Western Australia, and the Northern Territory, there are, in addition, considerable numbers of natives still in the "savage" state, numerical information concerning whom is of a most unreliable nature, and can be regarded as little more than the result of mere guessing.

Ethnologically interesting as is this remarkable and rapidly-disappearing race, practically all that has been done to increase our knowledge of them, their laws, habits, customs, and languages, has been the result of more or less spasmodic and intermittent effort on the part of enthusiasts either in private life or in the public service. An enumeration of them has never been seriously undertaken in connection with any Australian Census, though a record of the numbers who were in the employ of whites, or living in contiguity to the settlements of whites, has on the occasion of the recent Censuses usually been made. As stated above, various guesses at the number of aboriginal natives at present in Australia have been made, and the

general opinion appears to have prevailed that 150,000 might be taken as a rough approximation to the total. More recent estimates, however, have given results considerably below this figure. Thus, in his report of April 30, 1915, the Queensland Chief Protector of Aborigines estimates the total at 61,705, distributed as follows:—New South Wales, 6580; Victoria, 283; Queensland, 15,000; South Australia, 4842; Western Australia, 32,000; Northern Territory, 3000. In his report of April 20, 1917, the Chief Protector of Aborigines in Queensland estimated their number in that State to be 16,700 in 1916. A somewhat similar estimate made at an earlier date by Dr. Roth, formerly Chief Protector of Aborigines in Queensland, gave Queensland at least 18,000; Western Australia at least 24,000, and the Northern Territory from 20,000 to 22,000. In view of these figures it would appear that the number of aboriginal natives in Australia may be said to less than 100,000. The whole matter, however, is involved in considerable doubt.

The number of aboriginal natives enumerated in the several States and Territories of the Commonwealth at the Census of 1911 was as shewn hereunder, the figures given relating as before stated only to those in a civilised or semi-civilised condition.

#### ABORIGINAL NATIVES ENUMERATED AT CENSUS OF 1911.

Particulars.	N.S.W.	Victoria.	Queens- land.	South Australia.	Western Australia.	Tas- mania.	Northern Territory.	Federal Territ'y	C'wlth.
Males ...	1,152	103	5,145	802	3,433	2	743	5	11,385
Females ...	860	93	3,542	637	2,936	1	480	5	8,554
Total	2,012	196	8,687	1,439	6,369	3	1,223	10	19,939
Masculinity (a)	14.51	5.10	18.45	11.47	7.80	66.67	21.50	50.00	14.20

(a) Excess of males over females per 100 of the sexes combined.

These figures, as noted above, refer only to those natives who were, at the date of the Census, in the employ of whites or were living in contiguity to the settlements of whites.

In the Commonwealth Constitution Act provision is made for aboriginal natives to be excluded for all purposes for which statistics of population are made use of under the Act, but the opinion has been given by the Commonwealth Attorney-General that, "in reckoning the population of the Commonwealth, half-castes are not aboriginal natives within the meaning of section 127 of the Commonwealth of Australia Constitution Act, and should therefore be included." It may be added, however, that as "half-castes," living in the nomadic state, are practically indistinguishable from aboriginals, it has not always been found practicable to make the distinction, and further, that no authoritative definition of "half-caste" has yet been given.<sup>1</sup>

(b) *Immigrant Races.* As regards the immigrant races, it may be said that they consist mainly of natives of the three divisions of the United Kingdom and their descendants. The proportion of Australian-born contained in the population of the Commonwealth has, in recent years, increased rapidly, and at the Census of 3rd April, 1911, out of a total population of 4,424,535 persons whose birthplaces were specified, no fewer than 3,667,670, or 82.90 per cent., were Australian born, while of the remainder, 590,722, or 13.35 per cent., were natives of the United Kingdom, and 31,868, or 0.72 per cent., were natives of New Zealand, that is, 96.97 per cent. of the total population at the date of the Census had been born in either Australasia or the United Kingdom. The other birthplaces most largely represented in the Commonwealth were Germany, 32,990 (0.75 per cent.); China, 20,775 (0.47 per cent.); Scandinavia (comprising Sweden, Norway and Denmark), 14,700 (0.33 per cent.); Polynesia, 3410 (0.08 per cent.);

1. An article on the Aborigines of Australia, specially written for the Year Book by W. Ramsay Smith, D.Sc., M.B., C.M., F.R.S.E., Permanent Head of the Department of Public Health of South Australia, will be found in Year Book No. 3, Section IV., § 12, page 158.

British India, 6644 (0.15 per cent.); United States of America, 6642 (0.15 per cent.); and Italy, 6719 (0.15 per cent.). The total population of Asiatic birth was 36,442 (0.82 per cent.), of whom 3474 were born in Japan.

(c) *Non-European Races.* The Census taken on the 3rd April, 1911, was the first occasion on which a systematic attempt had been made to ascertain the number of persons of non-European races in Australia. On former occasions the inquiry did not usually extend further than a request that in all cases in which the person enumerated was an Aboriginal or a Chinese, whether of the full-blood or of the half-blood, the fact should be specially noted in the column on the Census schedule relating to birthplace. At the last Census the inquiry as to race was made one of the leading items, and all persons of non-European race were required to have their race specified. From the figures so obtained the following table has been compiled:—

**PERSONS OF NON-EUROPEAN RACE IN THE COMMONWEALTH, 3rd APRIL, 1911.**  
(EXCLUSIVE OF FULL-BLOODED ABORIGINALS.)

States and Territories.	Aust- ralian Half- caste Abori- ginals	Asiatic.		African.		American.		Polynesian.		Indefinite.		Total.	
		Full- blood.	Half- caste	Full- blood	Half- caste	Full- blood	Half- caste	Full- blood	Half- caste	Full- blood	Half- caste	Full- blood.	Half- caste
States—													
N. S. Wales ...	4,512	10,983	1,390	169	166	10	7	343	70	2	...	11,507	6,145
Victoria ...	447	5,972	1,056	58	63	6	9	12	5	1	2	6,049	1,582
Queensland ...	2,508	9,123	940	53	65	37	5	2,123	142	...	...	11,336	3,660
S. Australia ...	692	1,049	175	18	21	5	1	5	4	2	...	1,079	893
W. Australia ...	1,475	5,578	129	48	15	7	2	25	3	...	...	5,658	1,624
Tasmania ...	227	532	127	4	6	...	...	5	2	...	...	541	362
Territories—													
Northern ...	244	1,594	35	7	...	...	...	11	1	...	...	1,612	280
Federal ...	8	7	...	...	...	...	...	...	...	...	...	7	8
Total ...	10,113	34,838	3,852	357	336	65	24	2,524	227	5	2	37,789	14,554

The proportion of population of non-European race (exclusive of full-blooded aboriginals) in each State is shewn in the following table, full-blood and half-caste non-Europeans being shewn separately:—

**PROPORTION OF NON-EUROPEAN RACES IN THE COMMONWEALTH, 3rd APRIL, 1911.**  
(EXCLUSIVE OF FULL-BLOODED ABORIGINALS.)

States and Territories.	Total Population.	Non-European Races.					
		Full-blood.		Half-caste.		Total.	
		Number.	Number per 1000 of Total Populat'n.	Number.	Number per 1000 of Total Populat'n.	Number.	Number per 1000 of Total Populat'n.
States—							
N. S. Wales	1,646,734	11,507	6.99	6,145	3.73	17,652	10.72
Victoria ...	1,315,551	6,049	4.60	1,582	1.20	7,631	5.80
Queensland ...	605,813	11,336	18.71	3,660	6.04	14,996	24.75
S. Australia ...	408,558	1,079	2.64	893	2.19	1,972	4.83
W. Australia	282,114	5,658	20.05	1,624	5.76	7,282	25.81
Tasmania ...	191,211	541	2.83	362	1.89	903	4.72
Territories—							
Northern ...	3,310	1,612	487.01	280	84.59	1,892	571.60
Federal ...	1,714	7	4.08	8	4.67	15	8.75
Total C'wealth	4,455,005	37,789	8.48	14,554	3.27	52,343	11.75



(ii.) *Biological and Sociological Significance.* As regards race and nationality, therefore, the population of Australia is fundamentally British, and thus furnishes an example of the transplanting of a race into conditions greatly differing from those in which it had been developed. The biological and sociological significance of this will ultimately appear in the effects on the physical and moral constitution produced by the complete change of climatic and social environment, for the new conditions are likely to considerably modify both the physical characteristics and the social instincts of the constituents of the population. At present, the characteristics of the Australian population, whether physical, mental, moral, or social, are only in the making, and probably it will not be possible to point to a distinct Australian type until three or four generations more have passed. Even then, it is hardly likely that, with the great extent of territory and varying conditions presented by the Commonwealth there will be but one type; on the contrary, a variety of types may be expected. The Australian, at present, is little other than a transplanted Briton, with the essential characteristics of his British forbears, the desire for freedom from restraint, however, being perhaps somewhat accentuated. The greater opportunity for an open-air existence, and the absence of the restrictions of older civilisations, may be held to be in the main responsible for this.

4. *Differences among the States and Territories.*—(i.) *Sex Distribution.* The varying circumstances under which the settlement of the several States has been effected, and the essentially different conditions experienced in the due development of their respective resources, have naturally led to somewhat marked differences in the constitution of their populations. In the matter of sex distribution, the States in which the normal condition of older countries is most nearly represented are those of Victoria, South Australia, and Tasmania, in the first-mentioned of which, the females have, for some years past, with the exception of the year 1913, exceeded the males. This was also the case in South Australia in the years 1914, 1915, 1916 and 1917. In Western Australia and Queensland, on the other hand, the position of affairs has been somewhat abnormal, the excess of males over females in each 100 of population in 1915 being respectively 7.73 and 6.20. In 1916 and 1917 however, these rates were much reduced, having fallen in the latter year to 2.58 and 2.16 respectively. In 1916 there was an excess of females over males for the first time in New South Wales to the extent of 0.61 in each 100 of the population, followed in 1917 by an excess of 1.13.

In the Northern Territory, owing to lack of settlement, the masculinity has always been large, the figures for 1917 giving an excess of males over females in each 100 of population of no less than 58.

The variation in the masculinity of the estimated population of the several States and Territories and of the Commonwealth as a whole will be seen in the table on page 107.

(ii.) *Age Distribution.* The disparity in sex distribution exhibited by the several States is accompanied by a corresponding inequality in the matter of age distribution. For the purpose of convenient comparison in this respect the several populations may each be divided into three groups, indicative of dependence on the one hand, and ability to support on the other. The usual division for this purpose is into an initial group of "under 15" classed as "dependent age," a second group of "15 and under 65" classed as "supporting age," and a final group of "65 and upwards" classed "old age." From certain points of view the division might be into two classes, the "supporting" and the "dependent," as the majority of those aged "65 and upwards" strictly belong to the dependent class. The number of persons in each State at the Census 3rd April, 1911, in each of the three groups mentioned, and the proportion of same to the total for each State and the Commonwealth, were as follows:—

**NUMBER AND PROPORTION OF PERSONS IN THE COMMONWEALTH OF  
DEPENDENT, SUPPORTING, AND OLD AGE, ON 3rd APRIL, 1911.**

State or Territory.	Number of Persons of—				Proportion of Population of—		
	Dependent age (under 15).	Supporting age (15 and under 65).	Old age (65 and upwards).	All ages.	Dependent age (under 15).	Supporting age (15 and under 65).	Old age (65 and upwards).
States—					%	%	%
New South Wales ...	526,625	1,053,400	66,709	1,646,734	31.98	63.97	4.05
Victoria ...	400,260	847,700	67,591	1,315,551	30.42	64.44	5.14
Queensland ...	200,020	383,330	22,463	605,813	33.01	63.28	3.71
South Australia ...	127,290	262,356	18,912	408,558	31.15	64.22	4.63
Western Australia ...	87,884	187,574	6,656	282,114	31.15	66.49	2.36
Tasmania ...	66,708	116,604	7,899	191,211	34.89	60.98	4.13
Territories—							
Northern ...	485	2,708	117	3,310	14.65	81.81	3.54
Federal ...	551	1,081	82	1,714	32.15	63.07	4.78
Commonwealth ...	1,409,823	2,854,753	190,429	4,455,005	31.65	64.08	4.27

In Western Australia a larger proportion of its population was of supporting age than in any other State, whilst the Tasmanian proportion was the lowest. On the other hand, in Tasmania the proportion of dependent age was the highest for the Commonwealth, while the Victorian proportion was the lowest. Victoria had the highest and Western Australia the lowest proportion of persons aged 65 years and upwards.

In the Northern Territory the proportions are quite exceptional, the percentage of those of dependent age being much lower, and that for supporting age being much higher, than in any other part of the Commonwealth.

(iii.) *Birthplaces.* The following table exhibits, in a very condensed form, the distribution of the population of the several States and Territories according to birthplace:—

**BIRTHPLACES OF POPULATION AT CENSUS OF 3rd APRIL, 1911.**

(COMMONWEALTH.)

Birthplace.	Population of Commonwealth at Census.								
	States.						Territories.		C'wealth.
	N.S.W.	Victoria.	Qld.	S. Aust.	W. Aust.	Tas.	North-ern.	Fede-ral.	
Australia...	1,377,219	1,108,945	446,695	350,261	209,050	172,497	1,505	1,498	3,667,670
New Z'land	13,963	10,067	2,576	986	3,054	1,200	18	4	31,868
United Kingdom	204,394	157,436	120,015	44,431	50,552	13,472	262	160	590,722
Other European Countries	19,771	15,346	20,227	7,989	9,428	1,134	49	5	73,949
Asia ...	11,463	6,676	8,867	1,244	5,996	778	1,413	5	36,442
Africa ...	1,999	1,498	527	357	423	145	9	...	4,958
America ...	4,424	2,983	1,688	764	1,123	279	12	5	11,278
Polynesia	1,204	279	1,728	55	88	44	12	...	3,410
At Sea ...	1,479	1,303	629	422	281	122	2	...	4,238
Unspecified	10,818	11,018	2,861	2,049	2,119	1,540	28	37	30,470
Total ...	1,646,734	1,315,551	605,813	408,558	282,114	191,211	3,310	1,714	4,455,005

The proportions for the several States and Territories for each of the birthplaces shewn in the foregoing table expressed as percentages of the total population, the birthplaces of which were specified, are as follows:—

**PERCENTAGE OF COMMONWEALTH POPULATION ACCORDING TO BIRTHPLACE,  
3RD APRIL, 1911.**

Birthplace.	Percentage of Total Population.								
	States.						Territories.		C'wth.
	New South Wales.	Victoria.	Queensland.	South Australia	Western Aust.	Tasmania.	Northern	Federal	
	%	%	%	%	%	%	%	%	%
Australia ...	84.19	85.01	74.09	86.16	74.66	90.95	45.86	89.32	82.90
New Zealand	0.86	0.77	0.43	0.24	1.10	0.63	0.55	0.24	0.72
U. Kingdom	12.49	12.07	19.90	10.93	18.05	7.10	7.98	9.54	13.35
Other European Countries	1.21	1.18	3.35	1.97	3.37	0.60	1.49	0.30	1.67
Asia ...	0.70	0.51	1.47	0.31	2.14	0.41	43.05	0.30	0.82
Africa ...	0.12	0.11	0.09	0.09	0.15	0.08	0.27	...	0.11
America ...	0.27	0.23	0.28	0.19	0.40	0.15	0.37	0.30	0.25
Polynesia ...	0.07	0.02	0.29	0.01	0.03	0.02	0.37	...	0.08
At Sea ...	0.09	0.10	0.10	0.10	0.10	0.06	0.06	...	0.10
Total ...	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

As regards distribution in the States according to birthplace, the population of New South Wales is very similar to that of Victoria, the proportions born in the United Kingdom and Asia being slightly higher, and that born in Australia slightly lower, in the case of New South Wales. There is also a rough similarity between the population distributions of Queensland and Western Australia. In both, the Australian-born represent a much smaller, and those born in the United Kingdom, in "Other European Countries" and in Asia, a much larger proportion than is the case with the remaining States. Polynesians were, however, more numerous represented in Queensland at the date of the Census than in any other State. Natives of New Zealand were, proportionately, most numerous in Western Australia. Tasmania had the largest proportion of Australian-born population, viz., 91 per cent., while Queensland, with 74 per cent., had the smallest. On the other hand, nearly 20 per cent. of Queensland's population consisted of natives of the United Kingdom, while only 7 per cent. of the population of Tasmania had been born there. For the Commonwealth as a whole, over 98½ per cent. of the population were from Australasian or European birthplaces.

In the case of the Northern Territory, about 46 per cent. of the population were Australian born, while 43 per cent. were of Asiatic birth.

#### § 4. Elements of Growth of Population.

1. **Natural Increase.**—The two factors which contribute to the growth of a population are the "natural increase" by excess of births over deaths, and the "net immigration," i.e., the excess of arrivals over departures. While the relative potency of these factors depends upon a variety of causes, it may be said that, in general, in the case of a new country "net immigration" occupies an important position as a source of increase of population, while in an old country "natural increase," modified more or less by "net emigration," or excess of departures over arrivals, is the principal element causing growth of population. The table hereunder gives the total natural increase, as well as that of males and females:—

**NATURAL INCREASE (a) OF THE POPULATION**  
OF STATES, TERRITORIES, AND COMMONWEALTH, FROM 1861 TO 1917.  
**MALES.**

Period.	States.						Territories.		C'wealth
	N.S.W.	Victoria.	Q'land.	S. Aust. (b)	W. Aus.	Tas.	North- ern. (c)	Fed- eral. (d)	
1861 to 1865 ...	22,055	34,286	2,444	9,645	765	3,893	...	...	73,088
1866 to 1870 ...	25,850	34,997	5,739	10,881	754	3,281	...	...	81,502
1871 to 1875 ...	30,067	35,132	6,704	9,979	710	3,077	...	...	85,669
1876 to 1880 ...	34,040	31,985	7,960	13,676	1,023	3,472	...	...	92,156
1881 to 1885 ...	42,658	33,614	7,986	16,969	1,002	5,284	...	...	107,513
1886 to 1890 ...	54,753	39,528	17,872	16,519	1,755	6,093	...	...	136,520
1891 to 1895 ...	56,834	45,606	20,525	15,758	1,436	6,889	...	...	147,048
1896 to 1900 ...	48,692	33,645	17,724	12,562	3,402	6,373	...	...	122,398
1901 to 1905 ...	51,179	34,332	16,628	12,149	8,283	7,955	—223	...	130,303
1906 to 1910 ...	64,127	38,948	21,415	14,500	10,762	8,703	—264	...	158,191
1911 to 1915 ...	77,070	46,160	27,497	18,673	12,730	9,386	—201	78	191,393
1916 and 1917	31,672	17,990	11,051	6,843	4,714	3,519	—74	46	75,761
1861 to 1917 ...	538,997	426,223	163,545	158,154	47,336	67,925	—762	124	1,401,542

**FEMALES.**

1861 to 1865 ...	26,343	39,615	3,566	9,987	1,105	4,608	...	...	85,224
1866 to 1870 ...	30,327	40,919	7,571	11,223	1,301	4,451	...	...	95,792
1871 to 1875 ...	35,567	41,472	9,706	10,944	1,255	4,192	...	...	103,136
1876 to 1880 ...	40,276	37,551	12,291	14,608	1,585	4,699	...	...	111,010
1881 to 1885 ...	50,204	39,833	15,262	18,033	1,738	6,364	...	...	131,434
1886 to 1890 ...	62,090	48,131	24,238	17,320	2,609	7,228	...	...	161,616
1891 to 1895 ...	63,930	53,190	25,757	16,792	3,376	7,781	...	...	170,826
1896 to 1900 ...	57,107	40,474	24,037	13,443	7,054	6,718	...	...	148,833
1901 to 1905 ...	59,163	39,831	22,910	12,701	11,468	8,027	28	...	154,128
1906 to 1910 ...	71,297	42,629	26,048	14,754	13,354	8,522	33	...	176,637
1911 to 1915 ...	87,074	50,258	33,463	19,318	16,262	9,604	62	78	216,119
1916 and 1917	35,069	18,234	13,579	6,898	5,877	3,675	32	40	83,404
1861 to 1917 ...	618,447	492,137	218,428	166,021	66,984	75,869	155	118	1,638,159

**PERSONS.**

1861 to 1865 ...	48,398	73,901	6,010	19,632	1,870	8,501	...	...	158,312
1866 to 1870 ...	56,177	75,916	13,310	22,104	2,055	7,732	...	...	177,294
1871 to 1875 ...	65,634	76,604	16,410	20,923	1,965	7,269	...	...	188,805
1876 to 1880 ...	74,316	69,536	20,251	28,284	2,608	8,171	...	...	203,166
1881 to 1885 ...	92,862	73,447	23,248	35,002	2,740	11,648	...	...	238,947
1886 to 1890 ...	116,843	87,659	42,110	33,839	4,364	13,321	...	...	298,136
1891 to 1895 ...	120,764	98,796	46,282	32,550	4,812	14,670	...	...	317,874
1896 to 1900 ...	105,799	74,119	41,761	26,005	10,456	13,091	...	...	271,231
1901 to 1905 ...	110,342	74,163	39,538	24,850	19,751	15,982	—195	...	284,431
1906 to 1910 ...	135,424	81,577	47,463	29,254	24,116	17,225	—231	...	334,828
1911 to 1915 ...	164,144	96,418	60,960	37,991	28,992	18,990	—39	156	407,512
1916 and 1917	66,741	36,224	24,630	13,741	10,591	7,194	—42	86	159,165
1861 to 1917 ...	1,157,444	918,360	381,973	324,175	114,320	143,794	—607	242	3,039,701

(a) Excess of births over deaths. (b) Including Northern Territory prior to 1901. (c) Included in South Australia prior to 1901. (d) Part of New South Wales prior to 1911.

NOTE.—Minus sign (—) denotes excess of deaths over births.

With two exceptions, viz., Tasmania for the period 1906 to 1910 and the Federal Territory for the period 1916 and 1917, the natural increase of females exceeded that of males throughout the years referred to in the foregoing table. The quinquennial period in which the largest natural increase of population took place was that of 1911-15 with a total for the Commonwealth of 407,512. For the individual States the quinquennia of maximum natural increase were as follows:—New South Wales, Queensland, South Australia, Western Australia and Tasmania, 1911-15; and Victoria, 1891-5.

2. **Comparison with other Countries.**—Notwithstanding its comparatively low birth-rate, Australia has a high rate of natural increase, owing to the fact that its death-rate is a very low one. The following table furnishes a comparison between the average rates per annum of natural increase for some of the principal countries of the world for which such information is available, and those for the several States of the Commonwealth and the Dominion of New Zealand :—

**NATURAL INCREASE PER ANNUM PER 1000 OF MEAN POPULATION  
(VARIOUS COUNTRIES).**

Country.	Natural Increase. per 1000.	Country.	Natural Increase. per 1000.	Country.	Natural Increase. per 1000.
Australasia(1913-17)		Europe— <i>continued.</i>		Europe— <i>continued.</i>	
Tasmania ...	19.05	Prussia ... (c)	13.63	Belgium ... (b)	7.83
Queensland ...	18.78	Denmark ...	12.87	Ireland ...	5.96
Western Australia	18.36	German Empire (c)	12.81	France ... (d)	0.43
New South Wales	18.08	Italy ... (d)	12.78		
South Australia...	16.97	Finland ... (d)	12.25	Asia (1911-15)—	
Commonwealth	16.81	Norway ...	11.82	Japan... (c)	13.20
New Zealand. ...	16.40	Hungary ... (b)	11.77	Ceylon ...	6.46
Victoria ...	13.55	Austria ... (b)	10.64		
		Scotland ...	9.72	America(1911-15)—	
Europe (1911-15)—		England & Wales	9.54	Jamaica ...	14.93
Bulgaria ... (a)	17.73	Sweden ...	9.06	Canada (Province	
Rumania ... (d)	17.39	Spain ... (d)	8.91	of Ontario) ...	11.18
Netherlands ...	14.89	Switzerland ...	8.41	Chile ... (d)	8.61
Serbia ... (b)	14.12				

(a) 1907-11.

(b) 1908-12.

(c) 1909-13.

(d) 1910-14.

The graphs of natural increase for each of the States, as well as for the Commonwealth, are shown on page 150.

3. **Net Immigration.**—The other factor of increase in the population, viz., the excess of arrivals over departures, known as "net immigration," is, from its nature, much more subject to marked and extensive variation than is the factor of "natural increase." These variations are due to numerous causes, many of which have already been referred to in dealing with the influences which affect the growth of population. An important cause not yet referred to, is that of assisted immigration. The number of persons so introduced varies considerably in different years.

**NET IMMIGRATION, OR EXCESS OF ARRIVALS OVER DEPARTURES**

(STATES, TERRITORIES AND COMMONWEALTH), FROM 1861 TO 1917 INCLUSIVE.

Period.	States.						Territories.		Cwlth.
	N.S.W.	Victoria.	Q'land.	S. Aust. (a)	W. Aust.	Tas.	North'n. (b)	Fed. (c)	
MALES.									
1861 to 1865	2,984	—15,871	34,031	10,270	3,213	—2,997	...	...	31,630
1866 to 1870	23,381	13,516	10,190	— 242	1,182	— 313	...	...	47,714
1871 to 1875	20,346	—8,093	26,236	3,833	— 80	1,916	...	...	40,326
1876 to 1880	48,378	—5,696	13,892	25,056	— 179	2,418	...	...	83,869
1881 to 1885	70,996	19,925	54,867	—1,982	2,701	1,860	...	...	148,367
1886 to 1890	29,345	51,894	18,514	—12,895	6,411	2,648	...	...	95,917
1891 to 1895	8,671	—33,192	5,088	—1,493	39,443	—2,857	...	...	15,660
1896 to 1900	— 854	—39,805	8,095	—8,239	36,953	2,905	...	...	945
1901 to 1905	15,671	—37,971	495	—11,031	28,127	—1,771	697	...	—7,177
1906 to 1910	11,157	9,400	12,291	10,590	711	—5,784	366	...	37,999
1911 to 1915	18,878	2,223	6,531	—14,365	603	—6,491	1,150	—90	8,439
1916 & 1917	—55,526	—40,258	—18,899	—17,490	—17,317	—3,760	273	77	—152,900
1861 to 1917	193,427	—83,928	171,331	—17,988	101,768	—16,058	360	—13	348,899

Throughout the minus sign (—) signifies that the number of departures was in excess of arrivals.  
(a) Including Northern Territory up to 1900. (b) Included in South Australia up to 1900. (c) Part of New South Wales prior to 1911.

NET IMMIGRATION, OR EXCESS OF ARRIVALS OVER DEPARTURES  
(STATES, TERRITORIES AND COMMONWEALTH), FROM 1861  
TO 1917 INCLUSIVE—Continued.

Period.	States.						Territories.		C'wealth.
	N.S.W.	Victoria.	Q'land.	S. Aust. (a)	W. Aust.	Tas.	North'n (b)	Fed- eral. (c)	
FEMALES.									
1861 to 1865	8,578	21,527	18,824	5,993	952	1,358	...	...	54,516
1866 to 1870	9,928	16,702	4,851	1,207	517	500	...	...	32,705
1871 to 1875	9,395	2,498	11,187	774	18	2,500	...	...	21,336
1876 to 1880	25,081	169	7,792	12,977	130	462	...	...	46,273
1881 to 1885	38,867	7,861	27,526	100	957	562	...	...	75,673
1886 to 1890	23,220	34,337	14,811	11,310	1,768	42	...	...	62,784
1891 to 1895	12,793	13,656	422	1,964	7,758	1,705	...	...	6,732
1896 to 1900	143	23,777	927	7,627	32,043	2,009	...	...	3,432
1901 to 1905	1,566	21,984	2,398	8,448	22,293	726	81	...	9,616
1906 to 1910	9,390	10	7,780	4,408	1,867	4,023	148	...	19,279
1911 to 1915	45,187	20,342	12,168	6,576	11,589	5,277	251	118	90,954
1916 & 1917	1,685	4,138	4,126	1,678	1,867	1,282	114	112	2,942
1861 to 1917	182,177	39,553	107,172	8,087	77,989	14,380	298	230	401,126
PERSONS.									
1861 to 1865	11,562	5,656	52,855	16,263	4,165	4,355	...	...	86,146
1866 to 1870	33,309	30,218	15,041	965	1,699	813	...	...	80,419
1871 to 1875	29,741	5,595	37,423	4,607	98	4,416	...	...	61,662
1876 to 1880	73,459	5,865	21,684	38,033	49	2,880	...	...	130,142
1881 to 1885	109,863	27,786	82,393	2,082	3,658	2,422	...	...	224,040
1886 to 1890	52,565	86,231	33,325	24,205	8,179	2,606	...	...	158,701
1891 to 1895	21,464	46,848	4,666	471	47,201	4,562	...	...	22,392
1896 to 1900	997	63,582	9,022	15,866	68,996	4,914	...	...	2,487
1901 to 1905	17,237	59,955	1,903	19,479	50,420	2,497	616	...	16,793
1906 to 1910	20,547	9,410	20,071	14,993	2,578	9,807	514	...	57,278
1911 to 1915	64,065	22,565	18,699	7,789	12,192	11,768	1,401	28	99,393
1916 & 1917	57,211	44,396	14,773	15,812	19,184	5,042	387	189	155,842
1861 to 1917	375,604	44,375	278,503	9,901	179,757	30,438	658	217	750,025

NOTE.—The minus sign (—) signifies that the number of departures was in excess of arrivals.  
(a) Including Northern Territory up to 1900. (b) Included in South Australia up to 1900.  
(c) Part of New South Wales prior to 1911.

During the period 1861-1917, viz., 57 years, the gain to the Commonwealth population by excess of arrivals over departures was 750,025 persons, while the gain by excess of births over deaths for the same period was 3,039,701. That is, 19.79 per cent. of the increase for the Commonwealth during the past 57 years has been due to "net immigration" and 80.21 per cent. to "natural increase." In regard to the contribution by individual States to the total net immigration of 750,025, three of them, viz., New South Wales, Queensland, and Western Australia, shewed gains of 375,604; 278,503; and 179,757 respectively, while the remaining three, viz., Victoria, South Australia, and Tasmania shewed losses of 44,375; 9901; and 30,438 respectively.

The quinquennial period in which the greatest net immigration to the Commonwealth occurred was that of 1881-5 with a total of 224,040, whilst in the period 1901-5, the departures exceeded the arrivals by 16,793. The quinquennial periods in which maximum net immigration occurred in the several States were as follows:—New South Wales and Queensland 1881-5, Victoria 1886-90, South Australia 1876-80,

Western Australia and Tasmania 1896-1900. In all the States quinquennial periods have occurred in which the departures for the five years have exceeded the arrivals. The periods in which such net emigration from the several States was greatest were as follows:—New South Wales and Victoria 1896-1900, Queensland 1901-5, South Australia 1886-90, Western Australia 1871-5, and Tasmania 1911-15. In the two years 1916 and 1917 a net emigration of 155,842 was experienced, all the States having contributed to that total. This has been mainly due to the large numbers who have joined the over-sea forces in Europe and elsewhere owing to the war.

4. **Total Increase.**—The total increase of the population is found by the combination of the natural increase with the net immigration.

In the following table are set out the figures shewing the total increase in each quinquennium from 1861 to 1915 and for the two years 1916 and 1917:—

**TOTAL INCREASE OF THE POPULATION OF THE STATES, TERRITORIES AND  
COMMONWEALTH from 1861 to 1917.**

Period.	States.						Territories.		Common-wealth.
	N.S.W.	Vict.	Q'land.	S. Aust. (a)	W. Aust.	Tas.	North'n (b)	Fed'l. (c)	
MALES.									
1861 to 1865	25,039	18,415	36,475	19,915	3,978	896	...	...	104,718
1866 to 1870	49,231	48,513	15,929	10,639	1,936	2,968	...	...	129,216
1871 to 1875	50,413	27,039	32,940	13,812	630	1,161	...	...	125,995
1876 to 1880	82,418	26,289	21,852	38,732	844	5,890	...	...	176,025
1881 to 1885	113,654	53,539	62,853	14,987	3,703	7,144	...	...	255,880
1886 to 1890	84,098	91,422	36,386	3,624	8,166	8,741	...	...	232,437
1891 to 1895	65,505	12,414	25,613	14,265	40,879	4,032	...	...	162,708
1896 to 1900	47,838	—6,160	25,819	4,323	40,355	9,278	...	...	121,453
1901 to 1905	66,850	—3,639	17,123	1,118	36,410	6,184	920	...	123,126
1906 to 1910	75,284	48,348	33,706	25,090	11,473	2,919	630	...	196,190
1911 to 1915	95,948	47,168	34,028	5,523	13,333	2,895	949	12	199,832
1916 & 1917	—23,854	—22,268	—7,848	—10,647	—12,603	—241	199	123	—77,139
1861 to 1917	732,424	341,080	334,876	141,381	149,104	51,867	402	—111	1,750,441
FEMALES.									
1861 to 1865	34,921	61,142	22,390	15,980	2,057	3,250	...	...	139,740
1866 to 1870	40,255	57,621	12,422	12,430	1,818	3,951	...	...	128,497
1871 to 1875	44,962	43,970	20,893	11,718	1,237	1,692	...	...	124,472
1876 to 1880	65,357	37,382	20,083	27,585	1,715	5,161	...	...	157,283
1881 to 1885	89,071	47,694	42,788	17,933	2,695	6,926	...	...	207,107
1886 to 1890	85,310	82,468	39,049	6,010	4,377	7,186	...	...	224,400
1891 to 1895	76,723	39,534	25,335	18,756	11,134	6,076	...	...	177,558
1896 to 1900	56,964	16,697	24,964	5,816	39,097	8,727	...	...	152,265
1901 to 1905	60,729	17,847	20,512	4,253	33,761	7,301	109	...	144,512
1906 to 1910	80,687	42,639	33,828	19,157	15,221	4,499	115	...	195,916
1911 to 1915	132,261	70,600	45,631	25,894	27,851	4,327	313	196	307,073
1916 & 1917	33,384	14,096	17,705	8,576	4,010	2,393	146	152	80,462
1861 to 1917	800,624	531,690	325,600	174,108	144,973	61,489	453	348	2,039,285

Note.—The minus sign (—) denotes decrease.

(a) Including Northern Territory up to 1900. (b) Included in South Australia up to 1900.

(c) Part of New South Wales prior to 1911.

TOTAL INCREASE OF THE POPULATION OF THE STATES, TERRITORIES  
AND COMMONWEALTH FROM 1861 TO 1917.—Continued.

## PERSONS.

Period.	States.						Territories.		Commonwealth.
	N.S.W.	Vic.	Q'land.	S. Aust. (a)	W. Aust.	Tas.	North- ern. (b)	Feder- al. (c)	
1861 to 1865	59,960	79,557	58,865	35,895	6,035	4,146	...	...	244,458
1866 to 1870	89,486	106,134	28,351	23,069	3,754	6,919	...	...	257,713
1871 to 1875	95,375	71,009	53,833	25,530	1,867	2,853	...	...	250,467
1876 to 1880	147,775	63,671	41,935	66,317	2,559	11,051	...	...	333,308
1881 to 1885	202,725	101,233	105,641	32,920	6,398	14,070	...	...	462,987
1886 to 1890	169,408	173,890	75,435	9,634	12,543	15,927	...	...	456,837
1891 to 1895	142,228	51,948	50,948	33,021	52,013	10,108	...	...	340,266
1896 to 1900	104,802	10,537	50,783	10,139	79,452	18,005	...	...	273,718
1901 to 1905	127,579	14,208	37,635	5,371	70,171	13,485	811	...	267,638
1906 to 1910	155,971	90,987	67,534	44,247	26,694	7,413	745	...	392,106
1911 to 1915	228,209	117,768	79,659	31,417	41,184	7,222	1,262	184	506,905
1916 & 1917	9,530	8,172	9,857	2,071	8,593	2,152	345	275	3,323
1861 to 1917	1,533,048	872,770	660,476	315,489	294,077	113,356	51	459	3,789,726

Note.—The minus sign (—) denotes decrease.

(a) Including Northern Territory up to 1900. (b) Included in South Australia up to 1900.

(c) Part of New South Wales prior to 1911.

As regards the Commonwealth as a whole, the greatest increase in any quinquennium up to 1910 was that for the period 1881-5, viz., 462,987. These figures were, however, closely approached by those for the succeeding quinquennium, viz., 456,837. The rate of increase fell off, however, in the three subsequent quinquennia, the increase for the years 1901-5 being 267,638. In the following quinquennium an improvement set in, the increase in that period being 392,106. This was followed by a further improvement in the quinquennium 1911-15, the first three years of which gave increases of 143,624, 164,652, and 138,700 respectively. In the two succeeding years a falling-off was recorded, but this must be taken as having been caused by the war, there having been an excess of departures over arrivals in the two years of 17,370 and 91,053 respectively. In spite of this adverse influence, the increase for the quinquennium 1911-15 was 506,905, the highest yet recorded for the Commonwealth.

As regards the individual States the maximum increases in any quinquennium are as follows:—New South Wales, 228,209, in 1911-5; Victoria, 173,890, in 1886-90; Queensland, 105,641, in 1881-5; South Australia (including the Northern Territory), 66,317, in 1876-80; Western Australia, 79,452, in 1896-1900; Tasmania, 18,005, in 1896-1900.

As regards the minimum increases, it will be seen that they have occurred as under:—New South Wales, 59,960, in 1861-5; Victoria, 10,537, in 1896-1900; Queensland, 28,351, in 1866-70; South Australia, 5,371, in 1901-5; Western Australia, 1,867, in 1871-5; Tasmania, 2,853, in 1871-5.

In the two years 1916 and 1917 the net increase was very small, viz., 3,323. This was mainly due to a net decrease of 56,663 in the former year owing to the despatch of troops to Europe and elsewhere. In 1917 there was a net increase of 59,986.

The graphs shewing net increase, both for the Commonwealth as a whole and for each of the States, will be found on pages 148 and 149.

**5. Rates of Increase.**—(i.) *Rates for various Countries.* The table hereunder furnishes particulars concerning rates of increase in population for the Commonwealth, its component States, and other countries:—



## RATES OF INCREASE IN POPULATION, 1881 to 1917 (VARIOUS COUNTRIES).

Countries.	Mean Annual Rate of Increase in Population during period—							
	1881 to 1886.	1886 to 1891.	1891 to 1896.	1896 to 1901.	1901 to 1906.	1906 to 1911.	1911 to 1916.	1916 to 1917.
	%	%	%	%	%	%	%	%
<b>AUSTRALASIA—</b>								
Commonwealth ...	3.86	3.06	1.96	1.49	1.88	2.03	1.79	—0.01
New South Wales(a) ...	4.88	3.23	1.99	1.57	1.99	2.03	2.36	0.12
Victoria ...	2.60	3.12	0.37	0.52	0.18	2.17	1.81	—0.25
Queensland ...	8.42	3.80	2.49	2.25	1.35	2.76	1.98	0.40
South Australia (b) ...	1.41	1.15	1.63	0.77	0.27	2.46	1.11	—0.22
Western Australia ...	6.13	5.54	20.81	7.25	6.22	2.43	1.88	—1.99
Tasmania ...	2.18	2.87	1.06	1.83	1.33	0.65	0.81	0.39
New Zealand ...	3.31	1.47	2.41	1.98	2.86	2.56	1.61	0.29
<b>EUROPE—</b>								
England and Wales ...	1.11	1.11	1.15	1.15	1.04	1.04	(e) 0.71	...
Scotland ...	0.75	0.75	1.06	1.06	0.55	0.56	0.18	...
Ireland ...	—0.95	—0.94	—0.60	—0.43	—0.22	—0.06	—(e) 0.02	...
Austria ...	0.73	0.83	0.79	1.05	0.87	0.86	(c) 0.80	...
Belgium ...	1.13	0.75	1.15	0.92	1.26	0.69	(d) 0.99	...
Denmark ...	1.05	0.87	0.99	1.32	1.12	1.26	1.16	...
Finland ...	1.42	1.51	1.20	1.41	1.36	1.43	(e) 1.22	...
France ...	0.34	0.06	0.09	0.24	0.15	0.16	(d) 0.11	...
German Empire ...	0.74	1.09	1.17	1.51	1.46	1.36	(e) 1.23	...
Hungary ...	1.09	1.01	0.92	1.03	0.77	0.84	(c) 0.84	...
Italy ...	0.66	0.71	0.68	0.61	0.52	0.80	(e) 1.13	...
Netherlands ...	1.32	1.03	1.28	1.30	1.53	1.22	1.67	...
Norway ...	0.36	0.54	0.96	1.31	0.52	0.66	0.98	...
Prussia ...	0.79	1.15	1.29	1.59	1.57	1.48	(d) 1.29	...
Rumania ...	1.77	1.34	1.15	1.41	1.46	1.48	(e) 2.80	...
Serbia ...	2.30	2.08	1.37	1.57	1.52	1.55	(c) 1.72	...
Spain ...	0.54	0.48	0.45	0.45	0.52	0.87	(e) 0.74	...
Sweden ...	0.57	0.40	0.61	0.86	0.61	0.84	0.69	...
Switzerland ...	0.38	0.40	1.22	1.10	1.28	1.17	0.64	...
<b>ASIA—</b>								
Ceylon ...	0.54	1.35	1.41	2.03	1.62	1.20	1.40	...
Japan ...	0.96	1.12	0.96	1.25	1.29	1.08	(f) 1.58	...
<b>AMERICA—</b>								
Canada ...	1.10	1.08	0.97	1.19	2.99	2.99	(e) 3.87	...
Chile ...	2.97	0.72	2.66	0.90	1.53	1.56	(e) 1.30	...
Jamaica ...	0.77	1.37	1.66	1.72	1.63	0.28	1.50	...
United States ...	2.27	2.15	1.93	2.02	2.00	1.82	1.68	...

(a) Including Federal Territory. (b) Including Northern Territory.  
(c) 1911 to 1912. (d) 1911 to 1913. (e) 1911 to 1914. (f) 1911 to 1916. — Decrease.

(ii.) *Variations in the Commonwealth Rate.* During the twenty-five years 1881-1906 the annual rate of increase in the population of the Commonwealth exhibited a marked decline, falling from an average of 3.86 per cent. for the five years 1881-6 to an average of 1.38 for 1901-6. During the succeeding quinquennium, however, an improvement took place, the rate of increase being 2.03. In the following quinquennium there was a decline owing to the war. As regards the separate States of the Commonwealth, it will be seen that though the rates of increase for the quinquennium 1911-16 were in all cases lower than those for the quinquennia 1881-6 and 1886-91, it is only in the case of Western Australia that the 1911-16 rate represents the minimum for the seven quinquennia under review.

(iii.) *Comparison of Rates of Increase.* It may be noted that the highest rates of increase for the period 1906-11 are those for Canada, New Zealand, and the Commonwealth of Australia in the order named. The United States, Chile and Serbia rank next in order.

6. *Density of Population.*—From one aspect population may be less significant in respect of its absolute amount than in respect of the density of its distribution. The

Commonwealth of Australia, with an area of 2,974,581 square miles, and a population on 31st December, 1917, of 5,035,311 including aborigines, has a density of only 1.69 persons to the square mile, and is therefore the most sparsely populated of the civilised countries of the world. For the other continents the densities are approximately as follows:—Europe, 123; Asia, 53; Africa, 11; North and Central America, 16; and South America, 8. The population of the Commonwealth has thus about  $10\frac{1}{2}$  per cent. of the density of that of North and Central America, about  $21\frac{1}{2}$  per cent. of South America, about  $15\frac{1}{2}$  per cent. of that of Africa, about  $3\frac{1}{2}$  per cent. of that of Asia, and about  $1\frac{1}{2}$  per cent. of that of Europe.

Particulars concerning the number and density of the population of the various countries of the world for the latest dates for which such information is available are given in the following table. These figures have in the main been derived from the 1917 issue of the "Statesman's Year Book," and in some instances, more particularly in the case of Africa, must be considered as rough approximations only, complete data not being obtainable. As already mentioned on page 54 *ante* the areas dealt with in the following table are those which prevailed as at the outbreak of war:—

### NUMBER AND DENSITY OF THE POPULATION OF THE VARIOUS COUNTRIES OF THE WORLD.

Country.	Population.		Country.	Population.	
	Number.	Density. (a)		Number.	Density. (a)
<b>Continents—</b>			<b>Asia—</b>		
Europe ... ..	476,051,588	123.41	China & Dependencies ...	320,650,000	81.93
Asia ... ..	891,729,133	52.92	British India ... ..	244,267,542	223.47
Africa ... ..	131,670,732	10.76	Japan & Dep.(incl. Korea) ...	77,742,860	296.35
North & Central America and the West Indies ...	140,281,820	16.38	Feudatory Indian States ...	70,888,854	33.91
South America ... ..	58,600,652	7.87	Dutch East Indies ... ..	47,800,000	81.96
Australasia & Polynesia ...	8,301,523	2.40	Russia in Asia ... ..	29,141,500	4.39
			Turkey in Asia ... ..	19,451,849	27.81
			Arabia (Independent) ...	12,000,000	12.00
			Persia ... ..	9,500,000	15.13
			Philippine Islands ... ..	9,837,597	74.48
			Siam ... ..	8,266,408	42.39
			Tonking ... ..	6,119,720	132.40
			Afghanistan ... ..	6,000,000	24.00
			Nepal ... ..	5,939,092	109.98
			Annam ... ..	5,200,000	84.25
			Ceylon ... ..	4,424,300	174.65
			Cochin China ... ..	3,050,785	138.75
			Cambodia ... ..	1,634,252	24.13
			Bokhara ... ..	1,250,000	15.06
			Kiauchau, Neutral Zone ...	1,200,000	480.00
			Federated Malay States ...	1,036,999	37.70
			Malay Protectorate ... ..	899,937	36.04
			Straits Settlements ... ..	795,214	497.01
			Borneo and Sarawak ... ..	708,183	9.69
			Khiva ... ..	646,000	26.92
			Laos ... ..	640,877	5.73
			Goa ... ..	515,772	351.10
			Hong Kong & Territory ...	509,160	1,302.20
			Oman ... ..	500,000	6.10
			Timor, etc. ... ..	377,815	51.54
			Cyprus ... ..	294,664	82.22
			French India ... ..	266,828	1,361.37
			Bhutan ... ..	250,000	12.50
			Kiauchau (German) ... ..	192,000	960.00
			Kwang Chau Wan ... ..	168,000	435.23
			Wei-hai-wei ... ..	147,177	516.41
			Bahrein Islands ... ..	110,000	440.00
			Macao, etc. ... ..	74,866	18,716.50
			Aden & Dependencies ... ..	46,165	5.13
			Damoa and Diu ... ..	32,700	193.49
			Brunei ... ..	30,000	7.50
			Socotra & Kuria Muria Is. ...	12,000	8.68
			Tientsin ... ..	10,017	50,085.00
<b>Total ... ..</b>	<b>1,706,635,448</b>	<b>32.56</b>	<b>Total ... ..</b>	<b>891,729,133</b>	<b>52.92</b>
<b>Europe—</b>					
Russia (including Poland Ciscaucasia & Finland) ...	153,041,100	73.09			
German Empire ... ..	67,812,000	324.80			
Austria - Hungary (incl. Bosnia & Herzegovina) ...	52,290,566	200.15			
United Kingdom ... ..	46,089,249	378.92			
France ... ..	39,700,000	191.74			
Italy ... ..	36,120,118	326.49			
Spain (incl. Canary and Balearic Islands) ... ..	20,476,380	105.13			
Belgium ... ..	7,571,387	665.73			
Rumania ... ..	7,508,009	140.37			
Netherlands ... ..	6,449,348	512.52			
Portugal ... ..	5,960,056	167.94			
Sweden ... ..	5,757,566	33.27			
Greece (including Crete) ...	4,821,300	114.98			
Bulgaria & E. Roumelia ...	4,752,997	109.76			
Serbia ... ..	4,547,992	134.19			
Switzerland ... ..	3,880,500	242.90			
Denmark (incl. Iceland) ...	3,026,167	54.69			
Norway ... ..	2,440,500	19.58			
Turkey ... ..	1,891,000	173.77			
Albania ... ..	850,000	75.11			
Montenegro ... ..	516,000	92.09			
Luxemburg ... ..	259,891	260.41			
Malta ... ..	220,968	1,872.61			
Monaco ... ..	22,956	2,869.50			
Gibraltar ... ..	17,943	8,971.50			
San Marino ... ..	11,648	306.53			
Liechtenstein ... ..	10,716	164.86			
Andorra ... ..	5,231	273.87			
<b>Total ... ..</b>	<b>476,051,588</b>	<b>123.41</b>	<b>Total ... ..</b>	<b>891,729,133</b>	<b>52.92</b>

(a) Number of persons per square mile.

**NUMBER AND DENSITY OF THE POPULATION OF THE VARIOUS COUNTRIES OF THE WORLD.—Continued.**

Country.	Population.		Country.	Population	
	Number.	Density (a)		Number.	Density (a)
<b>Africa—</b>					
Northern and Southern			Porto Rico ...	1,194,489	229.48
Nigeria Protectorate ...	17,000,000	50.60	Jamaica ...	894,735	212.68
Belgian Congo ...	15,000,000	16.49	San Domingo ...	708,000	39.24
Egypt ...	12,154,000	34.73	Nicaragua ...	703,540	14.30
Abyssinia ...	8,000,000	22.86	Honduras ...	562,000	12.69
German East Africa ...	7,680,132	19.99	Costa Rica ...	430,701	18.73
Union of South Africa ...	5,973,394	12.63	Trinidad and Tobago ...	364,535	195.15
Upper Senegal and Niger	5,779,565	19.13	Newfoundl'd & Labrador	251,726	1.55
Algeria ...	5,563,828	16.20	Guadeloupe and Depend.	212,500	308.87
Angola ...	4,119,000	8.50	Martinique ...	185,400	490.48
French Equat. Africa ...	4,104,076	4.09	Barbados ...	180,516	1,087.45
British East Africa Prot.	4,038,000	16.36	Windward Islands ...	178,818	339.31
Morocco ...	3,600,000	16.44	Leeward Islands ...	127,193	177.89
Sudan ...	3,380,531	3.43	Alaska ...	66,356	0.11
Madagascar & adjacent			Bahamas ...	58,129	13.20
Islands ...	3,512,690	15.54	Curaçao ...	56,754	140.83
Portuguese East Africa ...	3,120,000	7.31	British Honduras ...	41,543	4.83
Uganda Protectorate ...	2,887,413	26.46	Danish West Indies (d)...	32,000	225.35
Kamerun ...	2,650,591	13.87	Bermudas ...	20,801	1,094.79
French Guinea ...	1,810,059	19.62	Greenland ...	13,517	0.29
Liberia ...	1,800,000	45.00	Turks & Caicos Islands...	5,930	26.47
Tunis ...	1,780,527	35.61	Cayman Islands ...	5,564	62.52
Rhodesia ...	1,646,412	3.75	St. Pierre & Miquelon ...	4,200	43.75
Ivory Coast ...	1,531,917	12.20			
Gold Coast and Protect.	1,503,386	18.79	<b>Total ...</b>	<b>140,281,820</b>	<b>16.38</b>
Sierra Leone and Protect.	1,403,132	45.26			
Senegal ...	1,282,566	17.33	<b>South America—</b>		
Nyassaland Protectorate	1,141,164	28.84	Brazil (incl. Acre) ...	26,629,040	7.91
Togoland ...	1,032,346	30.63	Argentine Republic ...	7,885,237	6.84
Dahomey ...	900,000	23.98	Colombia (excl. Panama)	5,071,101	11.50
Military Territory of the			Peru ...	4,500,000	6.23
Niger (French) ...	850,000	1.59	Chile ...	3,641,477	12.56
Portuguese Guinea ...	820,000	58.82	Bolivia ...	2,889,970	5.62
French Sahara ...	800,000	0.52	Venezuela ...	2,816,484	7.07
Mauretania ...	600,000	1.74	Ecuador ...	2,000,000	17.24
Tripoli and Benghazi ...	528,676	1.30	Uruguay ...	1,346,161	18.66
Eritrea ...	450,000	9.83	Paraguay ...	1,000,000	6.06
Basutoland ...	405,303	34.65	Panama ...	367,790	11.36
Italian Somaliland ...	450,000	3.23	British Guiana ...	312,391	3.51
Mauritius and Depend. ...	388,086	479.71	Dutch Guiana ...	88,750	1.93
British Somaliland ...	300,000	4.41	French Guiana ...	48,800	1.43
French Somali Coast, etc.	208,000	4.49	Falkland Islands and		
Rio Muni & C. San Juan...	200,000	16.67	South Georgia ...	3,451	0.46
Zanzibar ...	197,189	193.33			
Réunion ...	173,822	180.13	<b>Total ...</b>	<b>58,600,652</b>	<b>7.87</b>
Cape Verde Islands ...	149,793	101.21			
Gambia & Protectorate	145,700	32.35	<b>Australasia &amp; Polynesia—</b>		
Bechuanaland Protect. ...	125,350	0.46	O'wealth of Australia ...	(b) 5,035,311	1.69
Swaziland ...	99,959	0.29	New Zealand ...	(c) 1,160,188	11.08
German S. W. Africa ...	94,386	0.29	Kaiser Wilhelm Land &		
Comoro Islands ...	84,117	121.21	Bismarck Archipelago ...	720,364	8.00
Spanish N. & W. Africa	68,536	787.77	Papua ...	291,333	3.22
St. Thomas & Prince Is.	58,907	163.63	Hawaii ...	237,622	36.85
Seychelles ...	24,435	156.63	Dutch New Guinea ...	200,000	1.32
Fernando Po, etc. ...	23,944	23.29	Fiji ...	159,321	21.43
Mayotte ...	13,500	94.41	Solomon Islands (British)	150,530	10.33
Rio de Oro and Adrar ...	12,000	0.16	New Hebrides ...	70,000	13.73
St. Helena ...	3,594	76.47	New Caledonia & Depend.	57,208	6.69
Ascension ...	196	5.76	German Solomon Is., etc.	55,264	11.03
			Samoa (German) ...	39,105	39.11
<b>Total ...</b>	<b>131,670,732</b>	<b>10.76</b>	French Estab. in Oceania	31,477	20.71
			Gilbert & Ellice Islands	31,018	149.13
<b>North &amp; Central America</b>			Tonga ...	23,956	61.43
& West Indies—			Marshall Islands ...	15,179	101.19
United States ...	102,017,312	34.30	Guam ...	13,491	64.24
Mexico ...	15,501,684	19.73	Samoa (American) ...	9,100	89.22
Canada ...	8,075,000	2.17	Norfolk Island ...	985	98.50
Cuba ...	2,627,536	59.49			
Haiti ...	2,500,000	245.00	<b>Total ...</b>	<b>8,301,523</b>	<b>2.40</b>
Guatemala ...	2,003,579	41.49			
Salvador ...	1,267,762	96.22			

(a) Number of persons per square mile. (b) Inclusive of an allowance of 100,000 for Aboriginal Natives. (c) Inclusive of Maoris and population of Cook and other Pacific Islands. (d) Sold to United States in 1917.

### § 5. Seasonal Variations of Population.

1. **Natural Increase.**—For the Commonwealth as a whole the natural increase of the population is greatest in the quarter ending 30th September, and least in that ending 31st March. The birth rate is usually at its highest, and the death rate at its lowest, in the September quarter, and *vice versa* in the March quarter. The average natural increase in population of the several States for each of the quarters, based upon the experience of the ten years 1908 to 1917, is given in the following table, from which it will be seen that the quarter in which the rate of natural increase was highest is that ended 30th June for Victoria and Queensland, that ended 30th September for New South Wales and Western Australia, and that ended 31st December for Tasmania. In South Australia the natural increases for the June and September quarters were practically the same. The quarters shewing lowest rate of natural increase were that ended 31st March, in Victoria and Tasmania, that ended 30th June, in New South Wales, and that ended 31st December, in the three remaining States.

#### AVERAGE QUARTERLY NATURAL INCREASE, STATES AND COMMONWEALTH, 1908 to 1917.

State.	(a) Average Natural Increase for Quarter ended on last day of—								Average Natural Increase per annum, 1908-17.	
	March.		June.		September.		December.			
	Persons	‰	Persons	‰	Persons	‰	Persons	‰	Persons	‰
New S. Wales (b)	7,801	4.48	7,740	4.43	8,124	4.62	7,814	4.43	31,479	17.85
Victoria ...	4,403	3.26	4,691	3.48	4,540	3.35	4,545	3.34	18,179	13.35
Queensland ...	2,785	4.44	2,972	4.67	2,959	4.63	2,803	4.40	11,519	18.09
S. Australia (c)	1,661	3.95	1,842	4.38	1,841	4.36	1,671	3.92	7,015	16.46
W. Australia ...	1,334	4.53	1,357	4.57	1,477	4.95	1,252	4.20	5,420	18.17
Tasmania ...	875	4.50	876	4.55	919	4.76	1,009	5.10	3,679	18.62
Commonwealth	18,859	4.08	19,478	4.19	19,860	4.26	19,094	4.08	77,291	16.50

(a) The symbol ‰ denotes "per thousand." (b) Including Federal Territory.

(c) Including Northern Territory.

2. **Net Immigration.**—For the Commonwealth as a whole for the decennium 1908-17, arrivals exceeded departures in the March and September quarters, while departures were in excess in the June and December quarters. Victoria, Queensland, and Western Australia experienced excesses of arrivals in three of the four quarters, New South Wales and South Australia in two, and Tasmania in one only. Particulars concerning the average net immigration of the several States are as follows:—

#### AVERAGE QUARTERLY NET IMMIGRATION, STATES AND COMMONWEALTH, 1908 to 1917.

State.	Quarter ended on last day of—								Average Net Immigration per annum, 1908-17.	
	March.		June.		September.		December.			
	Persons	‰	Persons	‰	Persons	‰	Persons	‰	Persons	‰
N.S.W. <i>a</i>	1,714	0.98	— 403	—0.23	1,358	0.77	—2,100	—1.19	569	0.32
Victoria	23	0.02	—3,472	—2.57	1,063	0.78	2,027	1.49	— 359	—0.26
Q'land	2,551	4.06	5,314	8.36	739	1.16	—5,850	—9.19	2,754	4.33
S. Aust. <i>b</i>	—1,398	—3.33	—1,588	—3.78	418	0.99	1,926	4.52	— 642	—1.51
W. Aust.	188	0.64	1,043	3.51	518	1.74	—1,681	—5.64	68	0.23
Tas. ...	—2,689	—13.82	—2,514	—13.03	— 712	—3.69	3,593	18.18	—2,322	—11.75
C'wealth	389	0.08	—1,620	—0.35	3,384	0.73	—2,085	—0.45	68	0.01

NOTE.—The minus sign (—) denotes that the departures were in excess of arrivals, and ‰ denotes per thousand of population.

(a) Including Federal Territory. (b) Including Northern Territory.

## § 6. Urban Population.

1. **The Metropolitan Towns.**—A feature of the distribution of population in Australia is the tendency to accumulate in the capital cities. To such an extent is this metropolitan aggregation carried, that in every State the population of the capital far outnumbers that of any other town therein, and ranges between 21 and 52 per cent. of the entire population of the State. The estimated populations of the several capitals on 31st December, 1917, and the percentages of such populations on the totals for the respective States, are shewn in the table hereunder. That this metropolitan concentration is phenomenal, may be readily seen by comparing the percentage on the total population with the similar figures for the principal countries of Europe, also given in the table hereunder:—

### METROPOLITAN POPULATION.

(VARIOUS COUNTRIES.)

State or Country.	Metropolis.	Year.	Population.	Percentage on total of State or Country.
				%
New South Wales ...	Sydney ...	31st Dec., 1917.	777,300	41.35
Victoria ...	Melbourne ...		708,240	50.19
Queensland ...	Brisbane ...		173,504	25.20
South Australia ...	Adelaide ...		225,317	51.65
Western Australia ...	Perth ...		130,000	42.01
Tasmania ...	Hobart ...		40,352	19.86
Commonwealth ...	(6 Cities) ...	1916	2,054,713	41.63
New Zealand ...	Wellington ...		95,235	8.21
Denmark...	Copenhagen ...	1916	605,772	20.02
England ...	London (a) ...	1914	4,518,021	12.22
Saxony ...	Dresden ...	1914	551,697	11.07
Norway ...	Christiania ...	1910	241,834	10.11
Netherlands ...	Amsterdam ...	1915	616,589	9.56
Ireland ...	Dublin ...	1911	403,030	9.18
Belgium ...	Brussels ...	1912	663,647	8.77
Bavaria ...	Munich ...	1910	596,467	8.66
Portugal ...	Lisbon... ..	1911	435,359	7.31
France ...	Paris ... ..	1911	2,888,110	7.29
Austria ...	Vienna ... ..	1910	2,031,498	7.11
Sweden ...	Stockholm ...	1914	408,792	7.10
Scotland ...	Edinburgh ...	1911	326,901	6.83
Greece ...	Athens ... ..	1907	167,479	6.36
Prussia ...	Berlin ... ..	1910	2,071,257	5.16
Hungary ...	Budapest ... ..	1910	880,371	4.22
Spain ...	Madrid ... ..	1910	599,807	2.95
Switzerland ...	Berne ... ..	1915	96,900	2.50
Russia (European) ...	Petrograd ... ..	1915	2,318,645	1.76
Italy ...	Rome ... ..	1914	590,960	1.64

(a) Population of Greater London in 1914 was 7,419,704.

2. **Urban Population Generally.**—In connection with the particulars shewing the tendency in Australia to concentrate population in the metropolis, it should be borne in mind that in most of the European States the capital is but one of many populous cities, and in some instances is by no means the most populous. In Australia, on the other hand, the metropolis is in every instance the most populous city, and, in some of the States, is also the only town of considerable magnitude.

In the following table will be found particulars of all localities in the Commonwealth returned at the date of the Census, on 3rd April, 1911, as having a population of over 3000. From this it will be seen that there were, in all, 29 localities in the Commonwealth returned as having a population upwards of 20,000. Of these 11 were in New South Wales, 13 in Victoria, 1 in Queensland, 1 in South Australia, 1 in Western Australia and 2 in Tasmania.

The figures given in this table relate to the localities specified as defined by the residents therein. It must be understood that no clearly defined boundaries exist in these cases, and the population given for any locality represents the number of persons who returned themselves as belonging to that locality. For the population within the boundaries of the principal Local Government Areas in the States, reference should be made to paragraph 3 following.

## POPULATION OF PRINCIPAL TOWNS IN THE COMMONWEALTH, 3rd APRIL, 1911.

Town.	State in which Situated.	Approx. Population.	Town.	State in which Situated.	Approx. Population.
<b>100,000 and over—</b>			<b>10,000 and under 20,000—cont.</b>		
Sydney ... ..	N.S.W.	107,133	Toowoomba ... ..	Qld.	16,160
<b>20,000 and under 100,000—</b>			Townsville ... ..	N.S.W.	13,678
Adelaide ... ..	S.A.	32,981	Waverley ... ..	N.S.W.	18,961
Ballarat ... ..	Vic.	38,686	Williamstown ... ..	Vic.	12,114
Balmain ... ..	N.S.W.	31,961	Woollahra ... ..	N.S.W.	12,816
Brisbane ... ..	Qld.	21,332	<b>5000 and under 10,000—</b>		
Broken Hill ... ..	N.S.W.	30,953	Abbotsford ... ..	Vic.	9,308
Brunswick ... ..	Vic.	32,201	Adelaide North ... ..	S.A.	9,300
Carlton ... ..	"	27,476	Albury ... ..	N.S.W.	5,862
Collingwood ... ..	"	20,254	Alexandria ... ..	"	9,491
Fitzroy ... ..	"	34,141	Ararat ... ..	Vic.	5,403
Footscray ... ..	"	21,933	Armidale ... ..	N.S.W.	6,530
Geelong ... ..	"	21,630	Arncliffe ... ..	"	5,034
Glebe ... ..	N.S.W.	21,444	Ascot Vale ... ..	Vic.	5,655
Hawthorn ... ..	Vic.	24,353	Auburn ... ..	N.S.W.	5,602
Hobart ... ..	Tas.	27,505	Bathurst ... ..	"	9,219
Launceston ... ..	"	20,937	Bexley ... ..	"	6,241
Leichhardt ... ..	N.S.W.	24,139	Bundaberg ... ..	Qld.	8,727
Marrickville ... ..	Vic.	25,993	Burwood ... ..	N.S.W.	8,281
Melbourne ... ..	"	38,293	Cairns ... ..	Qld.	5,193
Melbourne South ... ..	"	46,016	Camberwell ... ..	Vic.	8,547
Newtown ... ..	N.S.W.	26,427	Castlemaine ... ..	"	5,219
Paddington ... ..	"	24,150	Caulfield ... ..	"	7,669
Perth ... ..	W.A.	31,300	Chatswood ... ..	N.S.W.	5,483
Petersham ... ..	N.S.W.	20,407	Claremont ... ..	W.A.	6,252
Prahran ... ..	Vic.	25,489	Coburg ... ..	Vic.	9,454
Redfern ... ..	N.S.W.	24,275	Cottesloe ... ..	W.A.	5,142
Richmond ... ..	Vic.	38,559	Drummoyne ... ..	N.S.W.	5,947
St. Kilda ... ..	"	25,449	Dubbo ... ..	"	5,368
Sydney North ... ..	N.S.W.	32,764	Eaglehawk ... ..	Vic.	6,998
<b>10,000 and under 20,000—</b>			Elsternwick ... ..	"	6,790
Annandale ... ..	N.S.W.	11,250	Erskineville ... ..	N.S.W.	7,234
Ashfield ... ..	"	12,096	Flemington ... ..	Vic.	6,109
Bendigo ... ..	Vic.	17,883	Fortitude Valley ... ..	Qld.	7,090
Botany ... ..	N.S.W.	10,228	Fremantle ... ..	W.A.	6,406
Boulder ... ..	W.A.	12,833	Fremantle South ... ..	"	6,253
Brighton ... ..	Vic.	11,096	Glenelg ... ..	S.A.	5,003
Brisbane ... ..	Qld.	17,715	Grafton and Grafton South	N.S.W.	6,123
Charters Towers ... ..	"	15,037	Granville ... ..	"	6,938
Essendon ... ..	Vic.	10,087	Hamilton ... ..	"	6,944
Goulburn ... ..	N.S.W.	10,187	" ... ..	Vic.	5,551
Gympie ... ..	Qld.	11,718	Hurstville ... ..	N.S.W.	5,112
Ipswich ... ..	"	10,445	Inverell ... ..	"	5,131
Kalgoorlie ... ..	W.A.	13,488	Kensington ... ..	Vic.	7,341
Kew ... ..	Vic.	11,143	Kogarah ... ..	N.S.W.	6,300
Malvern ... ..	"	15,319	Leederville ... ..	W.A.	5,499
Manly ... ..	N.S.W.	10,637	Lismore ... ..	N.S.W.	7,609
Melbourne North ... ..	Vic.	17,750	Lithgow ... ..	"	6,991
Mosman ... ..	N.S.W.	13,189	Mackay ... ..	Qld.	6,135
Newcastle ... ..	"	12,816	Maitland West ... ..	N.S.W.	7,395
Northcote ... ..	Vic.	17,491	Maryborough ... ..	Qld.	9,410
Parramatta ... ..	N.S.W.	12,520	" ... ..	Vic.	5,804
Port Melbourne ... ..	Vic.	13,471	Moonee Ponds ... ..	"	8,065
Randwick ... ..	N.S.W.	15,793	Mount Morgan ... ..	Qld.	9,772
Rockhampton ... ..	Qld.	15,451	New Farm ... ..	"	5,394
South Yarra ... ..	Vic.	10,060	Newtown ... ..	Vic.	5,863
			Norwood ... ..	S.A.	9,454

POPULATION OF PRINCIPAL TOWNS IN THE COMMONWEALTH,  
3RD APRIL, 1911—Continued.

Town.	State in which Situated.	Approx. Population.	Town.	State in which Situated.	Approx. Population.
5000 and under 10,000—cont.			3000 and under 5000—cont.		
Orange ...	N.S.W.	5,263	Gunnedah ...	N.S.W.	4,100
Paddington ...	Qld.	5,273	Hamilton ...	Qld.	3,229
Parkside ...	S.A.	7,774	Hindmarsh ...	S.A.	3,556
Port Pirie ...	"	7,968	Horsham ...	Vic.	3,554
Preston ...	Vic.	5,025	Ithaca ...	Qld.	3,378
Rockdale ...	N.S.W.	7,453	Junea ...	N.S.W.	3,606
Rookwood ...	"	5,374	Kangaroo Point ...	Qld.	4,417
St. Peters ...	"	7,037	Katoomba ...	N.S.W.	3,950
Subiaco ...	W.A.	8,701	Kensington ...	S.A.	4,175
Tamworth ...	N.S.W.	7,607	Kurri-Kurri ...	N.S.W.	4,154
Toowoong ...	Qld.	5,645	Kyneton ...	Vic.	3,174
Wagga Wagga ...	N.S.W.	7,446	Liverpool ...	N.S.W.	3,081
Walleroo ...	S.A.	5,282	Maldon ...	Vic.	3,077
Warrnambool ...	Vic.	7,543	Merewether ...	N.S.W.	4,135
Warwick ...	Qld.	5,562	Midland Junction ...	W.A.	3,881
Waterloo ...	N.S.W.	9,471	Mildura ...	Vic.	4,608
Woolloongabba ...	Qld.	8,326	Moonta ...	S.A.	3,772
3000 and under 5000—			Moree ...	N.S.W.	3,161
Albany ...	W.A.	3,699	Mount Gambier ...	S.A.	4,531
Armadale ...	Vic.	4,298	Mudgee ...	N.S.W.	3,621
Bairnsdale ...	"	3,412	Narrabri ...	"	4,686
Beechworth ...	"	3,409	Newtown ...	Tas.	3,382
Benalla ...	"	3,172	Northam ...	W.A.	4,205
Bunbury ...	W.A.	3,920	Oakleigh ...	Vic.	3,341
Camperdown ...	N.S.W.	4,768	Parkes ...	N.S.W.	3,411
Campsie ...	Vic.	3,473	Perth North ...	W.A.	4,895
Canterbury ...	N.S.W.	3,957	Perth West ...	"	3,291
Casino ...	"	4,190	Port Adelaide ...	S.A.	3,386
Cessnock ...	"	3,635	Prospect ...	"	3,998
Clifton Hill ...	Vic.	3,957	Queentown ...	Tas.	3,659
Cobar ...	N.S.W.	4,023	Roma ...	Qld.	3,157
Colac ...	N.S.W.	4,619	Ryde ...	N.S.W.	3,247
Concord ...	Vic.	3,992	St. Arnaud ...	Vic.	4,096
Coonamble ...	N.S.W.	3,799	Sale ...	"	3,491
Cootamundra ...	"	3,280	Semaphore ...	S.A.	3,495
Cowra ...	"	3,352	Shepparton ...	Vic.	4,049
Darlington ...	"	3,981	Singleton ...	N.S.W.	3,655
Daylesford ...	"	3,815	Stawell ...	Vic.	4,843
Devonport ...	Vic.	3,928	Strathfield ...	N.S.W.	3,093
Dulwich Hill ...	Tas.	3,620	Summer Hill ...	"	3,854
Echuca ...	N.S.W.	3,578	Temora ...	"	3,561
Enfield ...	Vic.	4,137	Toorak ...	Vic.	3,630
Forbes ...	N.S.W.	4,475	Unley ...	S.A.	4,397
Fremantle East ...	W.A.	4,654	Wangaratta ...	Vic.	4,136
Fremantle North ...	"	3,856	Waratah ...	N.S.W.	3,597
Gawler ...	S.A.	3,315	Wellington ...	"	4,409
Geraldton ...	S.A.	4,037	Willoughby ...	"	4,693
Glen Innes ...	W.A.	4,037	Windsor ...	Vic.	3,953
Goodwood ...	N.S.W.	3,494	Wollongong ...	N.S.W.	4,725
Grenfell ...	S.A.	4,030	Wonthaggi ...	Vic.	3,223
Guildford ...	N.S.W.	3,443	Wyalong ...	N.S.W.	3,301
	W.A.	3,007	Young ...	"	3,619
		3,224	Zeehan ...	Tas.	3,951

Many of the towns contained in the foregoing table are credited with population which is not really urban in character, owing to the fact that in the compilation of this table all persons stating that they resided in a given town were classed as part of its population, although certain of them may have dwelt a considerable distance from its business centre. For the purpose of providing a more satisfactory comparison of the urban populations of the several States, the following table has been compiled from the 1911 Census data, shewing the area and population of incorporated districts of an urban character. The incorporated areas included consist solely of those of the type of boroughs having a population of 2,500 and upwards. In all the States except Tasmania, the local government areas, although variously designated, are divided into two types—(a) boroughs (mainly urban), (b) shires (almost entirely rural). In the case of Tasmania,

Hobart and Launceston correspond to the "borough," type, but several of the other "municipalities" contain towns which, under the scheme in force in the other States, would be classed as boroughs, and are certainly urban in character. Six of these, viz.—Beaconsfield, Burnie, Devonport, Newtown, Queenstown and Zeehan, have consequently been included at the figures shewn for them as localities, and an area of four square miles (2,560 acres) has been arbitrarily adopted for each. In all other cases the areas are those of the incorporated districts concerned.

### URBAN POPULATION OF AUSTRALIA, 3rd APRIL, 1911.

State.	Urban Area.	Population of Urban Area.		
		Number.	Average per Acre.	Percentage on Total Population.
	Acres.			%
New South Wales ...	571,215	903,254	1.58	54.85
Victoria ...	153,880	710,418	4.62	54.00
Queensland ...	112,928	215,602	1.91	35.59
South Australia ...	29,322	153,927	5.25	37.68
Western Australia ...	30,061	119,591	3.98	42.39
Tasmania ...	23,744	68,434	2.83	35.79
Commonwealth ...	921,150	2,171,226	2.36	48.74

3. **Municipal Population.**—In the following table the population of the Local Government Areas in the several States will be found set out. It includes only those areas having upwards of 5000 in population.

By the term "Local Government Areas" is meant those districts which have been incorporated for municipal purposes, and are variously known in the several States as Cities, Towns, Boroughs, Shires, Municipalities, Corporations, District Councils and Road Districts.

### POPULATION OF PRINCIPAL LOCAL GOVERNMENT AREAS IN THE COMMONWEALTH, 3rd APRIL, 1911.

Local Government Area.	State in which Situated.	Approx. Population.	Local Government Area.	State in which Situated.	Approx. Population.
<b>100,000 and upwards—</b>			<b>20,000 &amp; under 100,000—cont.</b>		
Sydney ...	N.S.W.	112,921	Glebe ...	N.S.W.	21,943
Melbourne ...	Vic.	103,593	Hawthorn ...	Vic.	24,450
			Hobart ...	Tas.	27,526
<b>20,000 and under 100,000—</b>			Launceston ...		20,754
Adelaide ...	S.A.	42,294	Leichhardt ...	N.S.W.	24,254
Ashfield ...	N.S.W.	20,431	Marrickville ...		30,653
Ballarat (City) ...	Vic.	22,017	Melbourne, South...	Vic.	46,190
Balmain ...	N.S.W.	32,038	Newtown ...	N.S.W.	26,498
Bendigo ...	Vic.	28,539	Paddington ...		24,317
Brisbane ...	Qld.	39,917	Perth (Municipality)	W.A.	35,767
Brisbane, South ...		30,061	Petersham ...	N.S.W.	21,712
Broken Hill ...	N.S.W.	30,972	Port Adelaide ...	S.A.	24,015
Brunswick ...	Vic.	32,215	Prahran ...	Vic.	45,367
Cessnock ...	N.S.W.	21,018	Redfern ...	N.S.W.	24,427
Collingwood ...	Vic.	34,190	Richmond...	Vic.	40,442
Essendon ...		23,749	St. Kilda ...		25,334
Fitzroy ...		34,283	Sydney, North ...	N.S.W.	34,646
Footscray ...		23,643	Unley ...	S.A.	23,773



POPULATION OF PRINCIPAL LOCAL GOVERNMENT AREAS IN THE  
COMMONWEALTH, 3rd APRIL, 1911.—Continued.

Local Government Area.	State in which Situated.	Approx. Population.	Local Government Area.	State in which Situated.	Approx. Population.
<b>10,000 and under 20,000—</b>			<b>5000 and under 10,000—cont.</b>		
Alexandria ...	N.S.W.	10,123	Eaglehawk ...	Vic.	7,588
Annandale ...	...	11,240	Erina ...	N.S.W.	9,176
Ballarat, East ...	Vic.	15,962	Erskineville ...	...	7,299
Boulder ...	W.A.	10,824	Esk ...	Qld.	5,575
Brighton ...	Vic.	12,083	Euroa ...	Vic.	5,130
Bulli ...	N.S.W.	10,123	Glengallan ...	Qld.	5,982
Camberwell ...	Vic.	12,551	Gobang ...	N.S.W.	5,326
Canterbury ...	N.S.W.	11,335	Goolman ...	Qld.	5,289
Caulfield ...	Vic.	15,919	Granville ...	N.S.W.	7,231
Colac ...	...	14,212	Guyra ...	...	6,534
Fremantle (Municipality)...	W.A.	14,499	Gympie ...	Qld.	8,923
Geelong ...	Vic.	13,618	Hamilton ...	N.S.W.	7,908
Goulburn ...	N.S.W.	10,023	Hampden ...	Vic.	9,829
Hindmarsh ...	S.A.	11,335	Hastings ...	N.S.W.	5,746
Ithaca ...	Qld.	15,756	Heidelberg ...	Vic.	8,610
Kalgoorlie (Road District)	W.A.	12,061	Highfields ...	Qld.	5,656
Kensington and Norwood...	S.A.	13,892	Hornsby ...	N.S.W.	8,901
Kew ...	Vic.	11,152	Hunter's Hill ...	...	5,013
Lake Macquarie ...	N.S.W.	14,610	Hurstville ...	...	6,533
Malvern ...	Vic.	15,969	Illawarra, Central ...	...	5,000
Manly ...	N.S.W.	10,465	Illawarra, North ...	...	5,157
Manning ...	...	11,137	Imlay ...	...	5,564
Moorabbin ...	Vic.	12,757	Ipswich ...	Qld.	9,528
Mosman ...	N.S.W.	13,243	Jondaryan ...	...	7,469
Newcastle ...	...	11,610	Kadina (District Council)...	S.A.	8,096
Northcote ...	Vic.	17,519	Kalgoorlie (Municipality)...	W.A.	8,781
Parramatta ...	N.S.W.	12,465	Karkaroc ...	Vic.	5,743
Port Melbourne ...	Vic.	13,515	Kentish ...	Tas.	5,571
Queenton ...	Qld.	14,277	Kerang ...	Vic.	8,969
Randwick ...	N.S.W.	19,463	Kogarah ...	N.S.W.	6,953
Rockdale ...	...	14,095	Korong ...	Vic.	5,517
Rockhampton ...	Qld.	15,456	Ku-ring-gai ...	N.S.W.	9,458
Toowoomba ...	...	13,119	Kyneton ...	Vic.	6,904
Townsville ...	...	10,636	Leederville ...	W.A.	5,457
Waterloo ...	N.S.W.	10,072	Leven ...	...	5,450
Waverley ...	...	19,831	Lilydale ...	Vic.	6,329
Williamstown ...	Vic.	15,275	Lismore ...	N.S.W.	7,281
Willoughby ...	N.S.W.	13,036	Lithgow ...	...	8,196
Woolahra ...	...	16,989	Liverpool Plains ...	...	5,651
<b>5000 and under 10,000—</b>			Livingstone ...	Qld.	5,656
Alberton ...	Vic.	5,479	Lyndhurst ...	N.S.W.	6,740
Albury ...	N.S.W.	6,309	Mackay ...	Qld.	5,141
Ararat (Shire) ...	Vic.	6,335	Macleay ...	N.S.W.	6,672
Auburn ...	N.S.W.	5,559	Maitland, West ...	...	3,210
Bairnsdale ...	Vic.	8,190	Marong ...	Vic.	6,646
Bathurst ...	N.S.W.	8,575	Maroochy ...	Qld.	5,288
Beechworth ...	Vic.	5,978	Maryborough ...	Vic.	5,675
Bellingen ...	N.S.W.	9,124	Mildura ...	Qld.	9,673
Benalla ...	Vic.	7,688	Mildura ...	Vic.	6,119
Berwick ...	...	6,632	Mitcham ...	S.A.	5,035
Bexley ...	N.S.W.	6,517	Mount Morgan ...	Qld.	8,504
Bland ...	...	5,522	Mulwaree ...	N.S.W.	7,009
Blaxland ...	...	9,661	Namoi ...	...	8,092
Blue Mountains ...	...	6,902	Nanango ...	Qld.	6,433
Boree ...	...	5,111	Narracan ...	Vic.	5,408
Borung ...	Vic.	5,412	New Norfolk ...	Tas.	6,124
Botany, North ...	N.S.W.	5,836	Newtown and Chiltwell ...	Vic.	5,831
Bright ...	Vic.	5,943	Numurkah ...	...	6,844
Bundaberg ...	Qld.	5,516	Nunawading ...	...	7,120
Buninyong (Shire) ...	Vic.	5,594	Patrick's Plains ...	N.S.W.	6,894
Burnside ...	S.A.	9,416	Perth (Road District) ...	W.A.	5,066
Burwood ...	N.S.W.	9,380	Phillip Island & Woolamai	Vic.	7,067
Byron ...	...	6,553	Pioneer ...	Qld.	9,752
Cabootture ...	...	5,759	Poowong and Jeetho ...	Vic.	7,449
Cairns (Town) ...	...	5,164	Port Germein ...	S.A.	5,210
Canoblas ...	N.S.W.	5,140	Portland (Shire) ...	Vic.	5,201
Castlemaine ...	Vic.	5,228	Port Pirie ...	S.A.	9,385
Clifton ...	Qld.	7,099	Preston ...	Vic.	5,049
Coburg ...	Vic.	9,505	Prospect ...	S.A.	6,813
Coolamon ...	N.S.W.	5,600	Rodney ...	Vic.	6,718
Crookwell ...	...	6,223	Rockwood ...	N.S.W.	5,418
Dandenong ...	Vic.	5,134	Rosalie ...	Qld.	7,982
Deloraine ...	Tas.	5,779	Ryde ...	N.S.W.	5,281
Dimboola ...	Vic.	5,796	St. Peters ...	N.S.W.	8,410
Dorriga ...	N.S.W.	7,684	Severn ...	S.A.	9,073
Drummoyne ...	...	8,678	Shepparton ...	N.S.W.	6,885
				Vic.	6,099

POPULATION OF PRINCIPAL LOCAL GOVERNMENT AREAS IN THE COMMONWEALTH, 3rd APRIL, 1911—Continued.

Local Government Area.	State in which Situated.	Approx. Population.	Local Government Area.	State in which Situated.	Approx. Population.
5000 and under 10,000—cont.			5000 and under 10,000—cont.		
Stephens ... ..	Qld.	5,415	Tungamah ... ..	Vic.	5,376
Stroud ... ..	N.S.W.	5,117	Tweed ... ..	N.S.W.	7,308
Subiaco ... ..	W.A.	8,926	Wagga Wagga ... ..	"	6,419
Swan Hill ... ..	Vic.	6,795	Wallarobba ... ..	"	5,619
Tamworth ... ..	N.S.W.	7,145	Wambo ... ..	Qld.	6,749
Tarampa ... ..	Qld.	6,699	Waranga ... ..	Vic.	5,291
Tarro ... ..	N.S.W.	6,492	Warrnambool (Shire) ... ..	"	8,653
Tenterfield (Shire) ... ..	"	5,153	Warrnambool (Town) ... ..	"	7,010
Terania ... ..	"	5,621	Warwick ... ..	Qld.	5,248
Thebarton ... ..	S.A.	8,720	Waugoola ... ..	N.S.W.	5,262
Thuringowa ... ..	Qld.	5,095	Wickham ... ..	"	8,434
Tintenbar ... ..	N.S.W.	5,865	Windsor ... ..	Qld.	8,970
Toombul ... ..	Qld.	6,791	Woodville ... ..	S.A.	7,787
Toowong ... ..	"	6,286	Zeehan ... ..	Tas.	5,726
Towong ... ..	Vic.	6,418			

§ 7. Assisted Immigration.

In the earlier days of settlement in Australia, State-assisted immigration played an important part. Such assistance ceased for the time being in Victoria in 1873, in South Australia in 1886, and in Tasmania in 1891. In New South Wales, general State-aided immigration was discontinued in the year 1887, but those who arrived under that system and were still residing in New South Wales might, under special regulations, send for their wives and families. A certain amount of passage money, graduated according to the age of the immigrant, was required to be paid in each case. Under the provisions of these regulations, immigrants to the number of 1994 received State assistance during the years 1888 to 1899 inclusive. From 1900 to 1905 no assistance of any kind was given, but from 1906 onwards assistance has again been afforded. In Queensland and Western Australia, such assistance, although varying considerably in volume from year to year, has been accorded for many years past. Assistance to immigrants, which in the case of Victoria, had practically ceased in 1873, has recently been again afforded. In South Australia the principle of State assistance was again introduced in 1911, and in Tasmania in 1912.

The number of assisted immigrants for the years 1912 to 1917, and the total from the earliest times up to the end of 1917, are given in following table:—

ASSISTED IMMIGRANTS DURING THE YEARS 1912 to 1917, AND UP TO THE END OF 1917.

STATES AND COMMONWEALTH.

State ... ..	N.S.W.	Victoria.	Qld.	S. Aust.	W.A.	Tas.	C'wlth.
No. Assisted during 1912	14,956	15,112	6,462	3,212	6,970	(a)	b 46,712
" " " 1913	9,860	12,146	4,757	2,759	7,708	215	37,445
" " " 1914	6,655	7,496	4,096	644	1,729	185	20,805
" " " 1915	1,595	1,724	1,599	79	635	64	5,796
" " " 1916	649	327	300	...	103	18	1,397
" " " 1917	239	146	91	...	26	2	504
Total to end of 1917 ...	271,735	186,654	214,047	102,707	41,795	22,183	839,121

(a) Figures not available.

(b) Exclusive of Tasmania.

## § 8. Enumerations and Estimates.

1. **Musters.**—Actual enumerations of Australia's population, of varying accuracy, have been made from the earliest times onward. Originally known as "Musters," these were first undertaken with a view to estimating the food and other requirements of the settlements. These musters, the results of which are said to have been very unreliable, appear to have been carried out at least annually from 1788 to 1825, when they were discontinued.

2. **Census-taking.**—The first regular Census in Australia was that of New South Wales, in November, 1828. The dates on which Censuses have been taken in the several States, and the populations enumerated thereat, are shewn in the table on the next page.

3. **The Census of 1901.**—A conference of the Government Statisticians of Australia and New Zealand, held in Sydney in February and March, 1900, aimed at securing uniformity in the collection and compilation of the Census of 1901. The householder's schedule which it drafted made provision for the collection of information in all the States under the following heads, viz.: Name, Sex, Age, Conjugal Condition, Relation to Head of Household, Occupation, Sickness and Infirmary, Birthplace, Length of Residence in Colony, Religion, Education, Materials of Houses and Number of Rooms. In addition to these, it was agreed that States so desiring might include further inquiries relating to Land, Live Stock, Crops, and certain other matters.

Provision was made for uniformity in the classification and compilation of the data by formulating rules for dealing with cases in which differences of opinion as to methods of treatment might exist. Thus, although conducted by six different States, the Census of the Commonwealth, as taken in 1901, was carried out on a fairly uniform plan, and consequently furnished data, in many ways suitable for purposes of aggregation or comparison. A detailed examination of the results, however, gives many indications of departure from a common line of action, which, in the absence of a central authority, can hardly be avoided in an undertaking of this nature.

4. **The Census of 1911.**—Under Section 51, sub-section (xi.) of the Constitution Act, power is given to the Parliament of the Commonwealth to make laws with respect to "Census and Statistics." This power was brought into requisition in 1905, when the Census and Statistics Act of 1905 became law, being assented to on 8th December, 1905. Under this Act provision is made for the appointment of a Commonwealth Statistician and amongst other duties that officer is charged with the taking of a Census in the year 1911 and in every tenth year thereafter.

The particulars which the Act requires to be included in the Census schedule are almost identical with those which were contained in the 1901 schedule, the principal alterations being that "Length of Residence in Australia" is specified instead of "Length of Residence in the Colony of Enumeration," that "Duration of Marriage" has to be asked in all cases, and that nationality has to be ascertained in addition to birthplace. The Census was taken as at 3rd April, 1911.

In each State a Census supervisor was appointed to control the collection within that State under the direction of the Commonwealth Statistician. Each State was then divided into Census districts, each of which was placed in the charge of an enumerator, and each Census district was further subdivided into collectors' districts, one collector for each district.

It should be noted, in connection with the Census of 1911, that a slight change in defining the date of reference has been made in order to accord with the English practice. In previous Australian censuses the date of the Census has been taken to be that of the day preceding the midnight which is adopted as the determining point. Thus, at the Census of 1901, where the figures given relate approximately to midnight between the 31st March and the 1st April, the Australian Census was stated to be that of the 31st March, while in a precisely similar case in England it was stated to be that of 1st April.

At the Census of 1911, taken as at midnight between the 2nd and 3rd April, the date of the Census has, in accordance with the English practice, been stated to be the 3rd April, and that day was gazetted as the day of the Census.

The total populations enumerated at the several Australian Censuses are shown in the following table:—

AUSTRALIAN CENSUSES.

Census Year.	Population Enumerated (exclusive of Aborigines).						
	New South Wales.	Victoria.	Queensland	South Australia.	Western Australia.	Tasmania.	Commonwealth. (Total)
1828	(Nov.) 36,598	...	...	...	...	...	...
1833	(2nd Sept.) 60,794	...	...	...	...	...	...
1836	(2nd Sept.) 77,096	...	...	...	...	...	...
1841	(2nd March) 130,856	...	...	...	...	(27th Sept.) 50,216	...
1844	...	...	...	(26th Feb.) 17,366	...	...	...
1846	(2nd March) 189,609	...	...	(26th Feb.) 22,390	...	(31st Dec.) 70,164	...
1847	...	...	...	...	...	...	...
1848	...	...	...	...	(10th Oct.) 4,622	...	...
1851	(1st Mar.) (a) 268,344	...	...	(1st Jan.) 63,700	...	(1st Mar.) 70,130	...
1854	...	(26th Apr.) (b) 234,298	...	...	(30th Sept.) 11,743	...	...
1855	...	...	...	(31st Mar.) 85,821	...	...	...
1856	(1st March) 269,722	...	...	...	...	...	...
1857	...	(29th Mar.) 408,998	...	...	...	(31st Mar.) 81,492	...
1859	...	...	...	...	(31st Dec.) 14,837	...	...
1861	(7th April) 350,860	(7th April) 538,628	(7th April) (b) 30,059	(7th April) 126,830	...	(7th April) 89,977	...
1864	...	...	(1st Jan.) 61,467	...	...	...	...
1866	...	...	...	(26th Mar.) 163,452	...	...	...
1868	...	...	(2nd Mar.) 99,901	...	...	...	...
1870	...	...	...	...	(31st Mar.) 24,785	(7th Feb.) 99,328	...
1871	(2nd April) 502,998	(2nd April) 730,198	(1st Sept.) 120,104	(2nd April) 185,626	...	...	...
1876	...	...	(1st May) 173,283	(26th Mar.) 213,271	...	...	...
1881(c)	749,825	861,566	213,525	279,865	29,708	115,705	2,250,194
1886	...	...	(1st May) 322,853	...	...	...	...
1891(d)	1,123,954	1,139,840	393,718	320,431	49,782	146,667	3,174,392
1901(e)	1,354,846	1,201,070	498,129	363,157	184,124	172,475	3,773,801
1911(f)	1,646,734	1,315,551	605,813	408,558	282,114	191,211	4,455,005
	(g) 1,714			(h) 3,310			

(a) Including Port Phillip District, which afterwards became the Colony of Victoria. (b) Previously included with New South Wales. (c) 3rd April. (d) 5th April. (e) 31st March. (f) 3rd April. (g) Federal Territory, previously included with New South Wales. (h) Northern Territory, previously included with South Australia.

5. Estimates of Population.—In the absence of an annual enumeration of the population, it becomes necessary to adopt some method of estimating it for intercensal periods, basing such estimates on the results of the most recent Censuses. The manner in which

this is effected varies, however, in different parts of the world. In England, for example, the assumption usually made is that the rate of increase of the preceding intercensal period will continue unchanged during the current period. Again, in the United States, it has been assumed, in certain cases, that the numerical increase per annum ascertained for the preceding intercensal period will hold good for the current period. From the earliest times in Australia, "statistics of fluctuation" have been obtained from the records of births, deaths, arrivals and departures. With reasonable thoroughness in the collection of such statistics, the deduced estimates possess much greater weight than those based on the mere assumption of a continuation of the increase experienced in the preceding period. In most cases, however, estimates of population, based on statistics of fluctuation, are found to be in excess at the Census, thus furnishing evidence of a uniform tendency to over-estimation, and indicating the necessity for a correction. In the population figures given in the earlier portion of the present section, the estimates of the population of the several States have been carefully revised, the results of the various Censuses being taken in conjunction with the records of births, deaths, arrivals and departures. It is believed that by this means the population of the Commonwealth from the date of settlement onwards has been obtained with a high degree of accuracy, and that the figures supplied represent a reasonably close approximation to the actual numbers. A detailed account of the adjustment for the decennium 1901-10 will be found on pp. 112-118 of Year Book No. 6. Particulars for the several States from the date of settlement onwards are given in the following tables, and are shewn by graphs on pages 145 to 147:—

## COMMONWEALTH POPULATION FROM EARLIEST DATE.

## MALES.

Year.	Estimated Population at end of Year.								Common-wealth.
	States.						Territories.		
	New S. Wales.	Victoria.	Queens-land.	South Australia.	Western Australia.	Tas-mania.	North-ern.	Federal	
1800*	3,780	...	...	...	...	...	...	...	3,780
1805	5,395	...	...	...	...	...	...	...	5,395
1810	7,585	...	...	...	...	...	...	...	7,585
1815	9,848	...	...	...	...	...	...	...	9,848
1820	23,784	...	...	...	...	...	...	...	23,784
1825	29,309	...	...	...	...	10,979†	...	...	40,288
1830	33,900	...	...	...	877	18,108	...	...	52,885
1835	51,949	...	...	...	1,231	28,749	...	...	81,929
1840	85,560	...	...	8,272	1,434	32,040	...	...	127,306
1845	113,739	...	...	12,810	2,689	43,921	...	...	173,159
1850	154,976	...	...	35,902	3,576	44,229	...	...	238,683
1855	147,822	226,462†	...	48,843	8,311	38,680	...	...	470,118
1860	197,851	330,302	16,817†	64,340	9,597	49,653	...	...	668,560
1865	222,890	348,717	53,292	84,255	13,575	50,549	...	...	773,278
1870	272,121	397,230	69,221	94,894	15,511	53,517	...	...	902,494
1875	322,534	424,269	102,161	108,706	16,141	54,678	...	...	1,028,489
1880	404,952	450,558	124,013	147,438	16,985	60,568	...	...	1,204,514
1885	518,606	504,097	186,866	162,425	20,688	67,712	...	...	1,460,394
1890	602,704	595,519	223,252	166,049	28,854	76,453	...	...	1,692,831
1895	668,209	607,933	248,865	180,314	69,733	80,485	...	...	1,855,539
1900	716,047	601,773	274,684	180,349	110,088	89,763	4,288†	...	1,976,992
1905	782,897	598,134	291,807	181,467	146,498	95,947	3,368	...	2,100,118
1910	858,181	646,482	325,513	206,557	157,971	98,866	2,738	...	2,296,308
1915	953,160	693,650	359,541	212,080	171,304	101,761	3,687	957†	2,496,140
1916	923,603	666,036	344,557	201,998	159,998	99,839	3,839	1,194	2,401,064
1917	929,306	671,382	351,693	201,433	158,701	101,520	3,886	1,080	2,419,001

\* Details as to sex not available for earlier quinquennial dates.

† Previously included with New South Wales. ‡ Previously included with South Australia.

COMMONWEALTH POPULATION FROM EARLIEST DATE.—Continued.

Year.	Estimated Population at end of Year.								
	STATES.						TERRITORIES.		C'wealth
	N.S.W.	Victoria.	Q'nsland.	S. Aust.	W. Aust.	Tas.	North- ern.	Fed eral.	
FEMALES.									
1800*	1,437	...	...	...	...	...	...	...	1,437
1805	2,312	...	...	...	...	...	...	...	2,312
1810	3,981	...	...	...	...	...	...	...	3,981
1815	5,215	...	...	...	...	...	...	...	5,215
1820	9,759	...	...	...	...	...	...	...	9,759
1825	9,004	...	...	...	...	3,213†	...	...	12,217
1830	10,688	...	...	...	295	6,171	...	...	17,154
1835	19,355	...	...	...	647	11,423	...	...	31,425
1840	41,908	...	...	6,358	877	13,959	...	...	63,102
1845	74,179	...	...	9,650	1,790	20,370	...	...	105,989
1850	111,924	...	...	27,798	2,310	24,641	...	...	166,673
1855	118,179	120,843†	...	48,544	4,294	31,282	...	...	323,142
1860	150,695	207,932	11,239†	61,242	5,749	40,168	...	...	477,025
1865	185,616	269,074	33,629	77,222	7,806	43,418	...	...	616,765
1870	225,871	326,695	46,051	89,652	9,624	47,369	...	...	745,262
1875	270,833	370,665	66,944	101,370	10,861	49,061	...	...	869,734
1880	336,190	408,047	87,027	128,955	12,576	54,222	...	...	1,027,017
1885	425,261	455,741	129,815	146,888	15,271	61,148	...	...	1,234,124
1890	510,571	538,209	168,864	152,898	19,648	68,334	...	...	1,458,524
1895	587,294	577,743	194,199	171,654	30,782	74,410	...	...	1,636,082
1900	644,258	594,440	219,163	176,901	69,879	83,137	569†	...	1,788,347
1905	704,987	612,287	239,675	181,154	103,640	90,438	678	...	1,932,859
1910	785,674	654,926	273,503	200,311	118,861	94,937	563	...	2,128,775
1915	917,259	725,526	319,134	226,205	146,712	99,264	876	872†	2,435,848
1916	934,941	732,848	324,910	230,711	148,808	100,086	928	1,029	2,474,261
1917	950,643	739,622	336,839	234,781	150,722	101,657	1,022	1,024	2,516,310
PERSONS.									
1788	859	...	...	...	...	...	...	...	859
1790	2,056	...	...	...	...	...	...	...	2,056
1795	3,466	...	...	...	...	...	...	...	3,466
1800	5,217	...	...	...	...	...	...	...	5,217
1805	7,707	...	...	...	...	...	...	...	7,707
1810	11,566	...	...	...	...	...	...	...	11,566
1815	15,063	...	...	...	...	...	...	...	15,063
1820	33,543	...	...	...	...	...	...	...	33,543
1825	38,313	...	...	...	...	14,192†	...	...	52,505
1830	44,588	...	...	...	1,172	24,279	...	...	70,039
1835	71,304	...	...	...	1,878	40,172	...	...	113,354
1840	127,468	...	...	14,630	2,311	45,999	...	...	190,408
1845	187,918	...	...	22,460	4,479	64,291	...	...	279,148
1850	266,900	...	...	63,700	5,886	68,870	...	...	405,356
1855	266,001	347,305†	...	97,387	12,605	69,962	...	...	793,260
1860	348,546	538,234	28,056†	125,582	15,346	89,821	...	...	1,145,585
1865	408,506	617,791	86,921	161,477	21,381	93,967	...	...	1,390,043
1870	497,992	723,925	115,272	184,546	25,185	100,886	...	...	1,647,756
1875	593,367	794,934	169,105	210,076	27,002	103,739	...	...	1,898,223
1880	741,142	858,605	211,040	276,393	29,561	114,790	...	...	2,231,531
1885	943,867	959,838	316,681	309,313	35,959	128,860	...	...	2,694,518
1890	1,113,275	1,133,728	392,116	318,947	48,502	144,787	...	...	3,151,355
1895	1,255,503	1,185,676	443,064	351,968	100,515	154,895	...	...	3,491,621
1900	1,360,305	1,196,213	493,847	357,250	179,967	172,900	4,857†	...	3,765,339
1905	1,487,884	1,210,421	531,482	362,621	250,138	186,385	4,046	...	4,032,977
1910	1,643,855	1,301,408	599,016	406,868	276,832	193,803	3,301	...	4,425,083
1915	1,870,419	1,419,176	678,675	438,285	318,016	201,025	4,563	1,829†	4,931,988
1916	1,858,544	1,398,884	669,467	432,709	306,806	199,925	4,767	2,223	4,875,325
1917	1,879,949	1,411,004	688,532	436,214	309,423	203,177	4,908	2,104	4,935,311

\* Details as to sex not available for earlier quinquennial dates. † Previously included with New South Wales. ‡ Previously included with South Australia.

The tables on the two preceding pages, shewing the quinquennial and other figures for the male, female, and total population of each State and the Commonwealth, give sufficient indication, for general purposes, of its progress. A reference to the diagrams given hereinafter (pp. 145 to 147), on which the graphs shew the particulars for *each* year, is also desirable. The characteristics of the fluctuations of each element, or of the totals, will be more readily perceived by reference to the graphs than they possibly can by reference to these numerical tables. The earliest date for which particulars as to sex were available is 1796. The figures from 1788 to 1825 inclusive, as already mentioned, are based upon the results of the musters taken in those years; those for subsequent years are founded upon estimates made on the basis of the Census results and the annual returns of births and deaths and immigration and emigration.

The following table furnishes particulars relative to the increase of population of the Commonwealth during each decade, and the percentage of such increase on the population at the commencement of the decade:—

#### INCREASE OF COMMONWEALTH POPULATION.

Decade ended 31st December.	Increase during Decade—					
	Numerical.			Percentage.		
	Males.	Females.	Persons.	Males.	Females.	Persons.
1790 ...	*	*	2,056	%	%	%
1800 ...	*	*	3,161	...	...	...
1810 ...	3,805	2,544	6,349	100.66	177.04	153.75
1820 ...	16,199	5,778	21,977	213.57	145.14	121.70
1830 ...	29,101	7,395	36,496	192.36	75.78	108.80
1840 ...	74,421	45,948	120,369	140.72	267.86	171.86
1850 ...	111,377	103,571	214,948	87.49	164.13	112.89
1860 ...	429,877	310,352	740,229	180.10	186.20	182.61
1870 ...	233,934	268,237	502,171	34.99	56.23	43.84
1880 ...	302,020	281,755	583,775	33.47	37.81	35.43
1890 ...	488,317	431,507	919,824	40.54	42.02	41.22
1900 ...	284,161	329,823	613,984	16.79	22.61	19.48
1910 ...	319,316	340,428	659,744	16.15	19.04	17.52

\* Not available.

### § 9. Census of 3rd April, 1911.

1. **Numbers Enumerated.**—As already mentioned, the Census for the whole of the Australian Commonwealth was taken as for the night between the 2nd and the 3rd of April, 1911, and was the first Census under the provisions of the Commonwealth Census and Statistics Act 1905, which provides for the enumeration of the whole of Australia being dealt with from one centre, instead of each State being responsible for its own count as on previous occasions. The numbers recorded in the several States and Territories of the Commonwealth were as follows:—

#### POPULATION OF THE COMMONWEALTH, 3rd APRIL, 1911. (EXCLUSIVE OF FULL-BLOODED ABORIGINALS.)

States and Territories.	Males.	Females.	Persons.
<b>States—</b>			
New South Wales ...	857,698	789,036	1,646,734
Victoria ...	655,591	659,960	1,315,551
Queensland ...	329,506	276,307	605,813
South Australia ...	207,358	201,200	408,558
Western Australia ...	161,565	120,549	282,114
Tasmania ...	97,591	93,620	191,211
<b>Territories—</b>			
Northern ...	2,734	576	3,310
Federal ...	992	722	1,714
<b>Total Commonwealth</b> ...	<b>2,313,035</b>	<b>2,141,970</b>	<b>4,455,005</b>

2. **Growth during last Three Decennia.**—The total increase of population of the Commonwealth between the Census of 31st March, 1901, and that of 3rd April, 1911, was 681,204, of which 335,107 were males and 346,097 were females, as compared with a total increase of 599,409, comprising 273,889 males and 325,520 females, for the preceding ten years. The population of each sex enumerated at the Censuses of 3rd April, 1881, 5th April, 1891, 31st March, 1901, and 3rd April, 1911, was as follows:—

**POPULATION OF COMMONWEALTH AT LAST FOUR CENSUSES.**

(EXCLUSIVE OF FULL-BLOODED ABORIGINALS.)

Date of Census.	Males.	Females.	Persons.	(a) Masculinity.
3rd April, 1881 ... ..	1,214,913	1,035,281	2,250,194	7.98
5th April, 1891 ... ..	1,704,039	1,470,353	3,174,392	7.36
31st March, 1901 ... ..	1,977,928	1,795,873	3,773,801	4.83
3rd April, 1911 ... ..	2,313,035	2,141,970	4,455,005	3.84

(a) Excess of males over females per 100 of population.

The increases in the populations of the several States during the past three inter-censal periods have been as follow:—

**INTERCENSAL INCREASES IN THE TOTAL POPULATION.**

State and Territory.	1881-1891.		1891-1901.		1901-1911.	
	Numerical.	Per cent.	Numerical.	Per cent.	Numerical.	Per cent.
N.S. Wales (a) ... ..	374,129	49.90	230,892	20.54	293,602	21.67
Victoria ... ..	278,274	32.30	61,230	5.37	114,481	9.53
Queensland ... ..	180,193	84.39	104,411	26.52	107,684	21.62
South Australia ... ..	39,119	14.15	42,813	13.57	50,212	14.01
West. Australia ... ..	20,074	67.57	134,342	269.86	97,990	53.22
Tasmania ... ..	30,962	26.76	25,808	17.60	18,736	10.86
N. Territory ... ..	1,447	41.93	(b)— 87	(b)— 1.78	(b)—1,501	(b)—31.20
Commonwealth ... ..	924,198	41.07	599,409	18.88	681,204	18.05

(a) Including Federal Territory. (b) Decrease.

For the Commonwealth as a whole, the increase in population during the decennium 1901-11 was greater by 81,795 than that for the decennium 1891-1901. The rate of increase per cent. was, however, not so great, being 18.05 per cent. for 1901-11, as against 18.88 for 1891-1901. The former corresponds to an increase of 1.67 per cent. per annum, the latter to an increase of 1.74 per cent. per annum.

As regards the separate States, the numerical increases in the case of New South Wales, Victoria, Queensland and South Australia were greater for 1901-11 than for 1891-1901. On the other hand, Western Australia and Tasmania experienced greater numerical increases in the earlier than in the later decennium, while the Northern Territory, which exhibited an actual loss of population in both decennia, experienced a much heavier loss in 1901-11 than in 1891-1901. In the matter of rates of increase per cent. New South Wales, Victoria and South Australia were higher in 1901-11 than in 1891-1901, while Queensland, Western Australia and Tasmania were lower, and the rate of decrease in the Northern Territory was much heavier.



### § 10. Principal Results of Census of 1911.

1. **Census Results.**—In the first issue of the Official Year Book tables are given shewing in some detail particulars concerning the Census of 1901 for the several States under the headings of Ages, Birthplaces, Occupations, Religions, and Conjugal Condition. (See Year Book No. 1, pp. 164 to 179.) In the Official Year Book No. 6, pp. 143 to 171, similar and a few additional particulars appeared as to the Census of 3rd April, 1911. In the following tables this information is given in a condensed form.

2. **Ages.**—The numbers of persons of each sex at each age enumerated in the several States of the Commonwealth at the Census of 3rd April, 1911, are as follows:—

#### AUSTRALIAN POPULATION AT 3rd APRIL, 1911, CLASSIFIED ACCORDING TO AGE. (EXCLUSIVE OF FULL-BLOODED ABORIGINALS.)

Age Group.	States.						Territories.		Total C'with.
	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	North'n.	Federal.	
MALES.									
Under 5 years	102,003	73,061	37,724	24,109	17,709	12,636	84	85	267,411
5 & under 15	164,273	129,201	63,522	40,059	26,596	21,393	153	188	445,390
15 .. .. 21	100,551	81,223	39,532	25,861	14,533	11,744	107	119	273,670
21 .. .. 45	316,463	229,179	121,711	75,059	72,569	32,779	1,002	358	849,120
45 .. .. 65	133,550	106,201	51,716	32,067	25,090	14,659	1,221	181	364,685
65 .. upwards	36,368	33,467	13,319	9,285	3,916	3,848	102	53	100,358
Unspecified ...	4,490	3,259	1,982	918	1,152	532	60	8	12,401
Total	857,698	655,591	329,506	207,358	161,565	97,591	2,734	992	2,313,035

FEMALES.									
Under 5 years	98,863	70,417	35,960	23,421	17,215	12,144	87	95	258,222
5 & under 15	161,118	126,427	62,413	39,262	26,014	20,455	148	180	436,017
15 " " 21	97,950	81,564	37,160	25,605	12,974	11,751	83	106	267,193
21 " " 45	292,364	242,746	97,277	73,022	47,268	32,018	201	213	785,109
45 " " 65	104,804	100,670	33,039	29,206	13,638	12,729	47	88	294,221
65 " upwards	30,134	34,356	9,254	9,730	2,720	3,993	6	32	90,225
Unspecified ...	3,803	3,780	1,184	954	720	530	4	8	10,983
Total	789,036	659,960	276,307	201,200	120,549	93,620	576	722	2,141,970

PERSONS.									
Under 5 years	200,866	143,478	73,704	47,530	34,924	24,780	171	180	525,633
5 & under 15	325,391	255,628	125,935	79,321	52,610	41,848	306	368	881,407
15 " " 21	198,501	152,787	76,692	51,466	27,507	23,495	190	225	540,863
21 " " 45	608,827	471,925	218,988	148,081	119,837	64,797	1,203	571	1,634,229
45 " " 65	238,354	206,871	84,755	61,273	38,728	27,388	1,268	269	658,906
65 " upwards	66,502	67,823	22,573	19,015	6,636	7,841	108	85	190,583
Unspecified ...	8,293	7,039	3,166	1,872	1,872	1,062	64	16	23,384
Total	1,646,734	1,315,551	605,813	408,558	282,114	191,211	3,310	1,714	4,455,005

3. **Birthplaces.**—In the next table particulars are given of the populations of the several States of the Commonwealth on 3rd April, 1911, classified according to sex and birthplace, the birthplaces being grouped under the five continental divisions of the globe, with two additional headings for those born in Polynesia, and those born at sea. Of the total population of 4,455,005, those of unspecified birthplace numbered 30,470, or slightly less than 7 per thousand:—

# AUSTRALIAN POPULATION at 3rd APRIL, 1911, CLASSIFIED ACCORDING TO BIRTHPLACE.

(EXCLUSIVE OF FULL-BLOODED ABORIGINALS.)

Birthplace.	States.						Territories.		Total C'with.
	N.S.W.	Vic.	Q'land	S.A.	W.A.	Tas.	North- ern.	Fede- ral.	
MALES.									
Australia ... ..	691,736	541,659	232,757	173,811	111,269	86,948	1,029	844	1,840,053
New Zealand ... ..	7,296	4,968	1,632	554	1,819	574	17	2	16,862
United Kingdom ...	121,046	82,927	68,406	24,283	32,191	7,577	224	113	336,767
Other European Countries...	15,507	11,501	12,997	5,636	8,080	776	45	4	54,546
Asia... ..	10,386	5,939	8,378	1,033	5,605	579	1,359	5	33,284
Africa ... ..	1,087	747	332	193	244	70	9	...	2,682
America ... ..	3,111	1,874	1,218	523	813	183	12	4	7,738
Polynesia ... ..	676	121	1,567	23	57	21	11	...	2,476
At Sea ... ..	817	630	342	211	146	62	1	...	2,209
Unspecified... ..	6,036	5,225	1,877	1,091	1,341	801	27	20	16,418
Total ... ..	857,698	655,591	329,506	207,358	161,565	97,591	2,734	992	2,313,035

## FEMALES.

Australia ...	685,483	567,286	213,938	176,460	97,781	85,549	476	654	1,827,617
New Zealand ...	6,667	5,099	944	432	1,235	626	1	2	15,006
United Kingdom ...	83,348	74,509	51,609	20,148	18,361	5,895	38	47	253,955
Other European Countries...	4,264	3,845	7,230	2,353	1,348	358	4	1	19,403
Asia...	1,077	737	489	211	391	169	54	...	3,158
Africa ...	912	751	195	164	179	75	...	...	2,276
America ...	1,313	1,109	470	241	310	96	...	1	3,540
Polynesia ...	528	158	161	32	31	23	1	...	934
At Sea ...	662	673	287	211	135	60	1	...	2,029
Unspecified ...	4,782	5,793	984	958	778	739	1	17	14,062
Total ...	789,036	659,960	276,307	201,200	120,549	93,620	576	722	2,141,970

## PERSONS.

Australia ...	1,377,219	1,108,945	446,695	350,261	209,050	172,497	1,505	1,498	3,667,670
New Zealand ...	13,963	10,067	2,576	986	3,054	1,200	18	4	31,868
United Kingdom ...	204,394	157,436	120,015	44,431	50,552	13,472	262	160	590,722
Other European Countries...	19,771	15,346	20,227	7,989	9,428	1,134	49	5	73,949
Asia...	11,463	6,676	8,867	1,244	5,906	778	1,413	5	36,442
Africa ...	1,999	1,498	527	357	423	145	9	...	4,958
America ...	4,424	2,983	1,688	764	1,123	279	12	5	11,278
Polynesia ...	1,204	279	1,728	55	88	44	12	...	3,410
At Sea ...	1,479	1,303	629	422	281	122	2	...	4,238
Unspecified ...	10,818	11,018	2,861	2,049	2,119	1,540	28	37	30,470
Total ...	1,646,734	1,315,551	605,813	408,558	282,114	191,211	3,310	1,714	4,455,005

4. **Occupations.**—In the compilation of the results of the Census of 3rd April, 1911, the populations of the several States and Territories were tabulated according to occupation in the following classes:—

(i.) *Professional.* Embracing all persons not otherwise classed, mainly engaged in the government and defence of the country, and in satisfying the moral, intellectual, and social wants of its inhabitants.

(ii.) *Domestic.* Embracing all persons engaged in the supply of board and lodging, and in rendering personal services for which remuneration is usually paid.

(iii.) *Commercial.* Embracing all persons directly connected with the hire, sale, transfer, distribution, storage, and security of property and materials.

(iv.) *Transport and Communication.* Embracing all persons engaged in the transport of persons or goods, or in effecting communication.

(v.) *Industrial.* Embracing all persons not otherwise classed who are principally engaged in various works of utility, or in specialities connected with the manufacture, construction, modification, or alteration of materials so as to render them more available

for the various uses of man, but excluding, as far as possible, all who are mainly or solely engaged in the service of commercial interchange.

(vi.) *Agricultural, Pastoral, Mineral, and other Primary Producers.* Embracing all persons mainly engaged in the cultivation or acquisition of food products, and in obtaining other raw materials from natural sources.

(vii.) *Independent.* Embracing all persons of independent means having no specific occupation.

(viii.) *Dependents.* Embracing all persons dependent upon relatives or natural guardians, including wives, children, and others, not otherwise engaged in pursuits for which remuneration is paid, and all persons depending upon private charity, or whose support is a burthen on the public revenue.

Particulars concerning the number contained in each of these classes are given in the table hereunder:—

### AUSTRALIAN POPULATION AT 3rd APRIL, 1911, CLASSIFIED ACCORDING TO OCCUPATION.

(EXCLUSIVE OF FULL-BLOODED ABORIGINALS.)

Occupation.	States.						Territories.		Total Cwealth
	N.S.W.	Vic.	Q'land.	S. Aus.	W. Aus.	Tas.	North- ern.	Fede- ral.	
MALES.									
Class									
I. Professional ...	36,763	26,607	11,403	6,644	6,746	3,350	73	52	91,638
II. Domestic ...	18,898	13,619	6,354	3,418	4,319	1,489	127	11	48,235
III. Commercial ...	88,208	74,448	28,905	23,304	15,378	7,041	196	19	236,499
IV. Transport and Communication ...	60,367	37,629	22,521	15,523	11,900	4,407	194	13	152,554
V. Industrial ...	171,921	141,317	56,949	44,385	24,043	14,710	206	210	453,743
VI. Primary Producers	199,143	139,221	98,721	47,642	53,059	30,413	1,673	396	570,268
VII. Independent	5,507	4,546	2,027	931	478	436	9	5	13,939
VIII. Dependents ...	265,731	202,357	98,359	62,275	43,913	33,630	236	272	706,773
Unspecified ...	11,160	15,847	4,267	4,236	1,729	2,115	18	14	39,386
Total ...	857,698	655,591	329,506	207,358	161,565	97,591	2,734	992	2,313,035
FEMALES.									
Class									
I. Professional ...	19,377	17,212	6,250	4,529	3,453	2,131	13	8	52,973
II. Domestic ...	54,483	48,556	20,216	14,060	9,303	6,375	74	64	153,131
III. Commercial ...	18,112	17,163	5,559	4,674	2,906	1,671	...	3	50,188
IV. Transport and Communication ...	1,597	1,609	621	347	326	331	...	6	4,837
V. Industrial ...	36,093	46,456	11,313	8,181	3,985	2,558	4	4	108,594
VI. Primary Producers	4,950	5,163	3,183	1,406	528	614	12	24	15,980
VII. Independent	3,401	3,507	731	761	272	443	...	1	9,116
VIII. Dependents ...	650,480	518,780	227,711	166,432	99,554	79,171	473	612	1,743,213
Unspecified ...	543	1,514	623	810	222	326	...	...	4,038
Total ...	789,036	659,960	276,307	201,200	120,549	93,620	576	722	2,141,970
PERSONS.									
Class									
I. Professional ...	56,140	43,819	17,653	11,173	10,199	5,481	86	60	144,611
II. Domestic ...	73,381	62,175	26,570	17,478	13,622	7,864	201	75	201,366
III. Commercial ...	106,320	91,611	34,564	26,978	18,284	8,712	196	22	286,687
IV. Transport and Communication ...	61,964	39,238	23,142	15,870	12,226	4,738	194	19	157,391
V. Industrial ...	208,014	187,773	68,262	52,566	28,028	17,268	212	214	562,337
VI. Primary Producers	204,093	144,384	101,904	49,048	53,587	31,027	1,685	420	586,148
VII. Independent	8,908	8,053	2,758	1,692	750	879	9	6	23,055
VIII. Dependents ...	916,211	721,137	326,070	228,707	143,467	112,801	709	884	2,449,986
Unspecified ...	11,703	17,361	4,890	5,046	1,951	2,441	18	14	43,424
Total ...	1,646,734	1,315,551	605,813	408,558	282,114	191,211	3,310	1,714	4,455,005

5. **Religions.**—In the Act under which the Census of 1911 was taken in the several States, persons enumerated were required under penalty to furnish replies to all the inquiries contained in the schedule, with the exception of that relating to religion. In this case, any person objecting to give such particulars was allowed to insert the words "Object to state" in the space provided for religion. Of the total population of 4,455,005 there were 83,003, or 1.86 per cent., who availed themselves of this option. There were also 36,114, or 0.81 per cent., concerning whom no particulars as to religion were obtained.

Of the remainder, 4,274,414, or 95.95 per cent., were members of the various Christian denominations, 36,785 were members of non-Christian religions, 14,673 were of indefinite religious belief, and 10,016 stated that they were of no religion.

Amongst the Christian denominations, that most numerously represented was the Church of England, with 1,710,443 adherents, the next in order being the Roman Catholic (921,425), the Presbyterian (558,336), the Methodist (547,806), the Baptist (97,074), the Congregational (74,046), the Lutheran (72,395), the Church of Christ (38,748), and the Salvation Army (26,665).

The principal non-Christian religions represented in Australia were the Hebrew, Confucian, Mohammedan and Buddhist, the members of the Hebrew congregation totalling 17,287.

Those included under the head of "Indefinite" in the attached table consist mainly of persons who stated that they were "Freethinkers" or "Agnostics," or returned themselves as being of "No Denomination," while under the head of "No Religion" are given those who were so returned on the schedules as well as a small number who stated that they were "Atheists."

**AUSTRALIAN POPULATION at 3rd APRIL, 1911, CLASSIFIED ACCORDING TO RELIGION.**

(EXCLUSIVE OF FULL-BLOODED ABORIGINALS).

Religion.	States.						Territories.		Total C'with.
	N.S.W.	Vic.	Q'land	S.A.	W.A.	Tas.	North- ern.	Fede- ral.	
MALES.									
Christian ... ..	820,484	623,789	305,929	192,825	147,116	92,902	1,050	961	2,185,056
Non-Christian ... ..	8,965	5,618	5,627	989	4,913	265	1,256	1	27,634
Indefinite ... ..	3,068	3,347	1,662	791	1,223	284	20	3	10,398
No Religion ... ..	2,471	2,110	1,595	787	1,074	169	31	2	8,239
Object to State ... ..	14,969	14,212	8,981	9,930	4,547	3,008	86	13	55,766
Unspecified ... ..	7,721	6,515	5,712	2,036	2,692	963	291	12	25,942
Total ... ..	857,698	655,591	329,506	207,358	161,565	97,591	2,734	992	2,313,035
FEMALES.									
Christian ... ..	773,845	643,264	269,895	193,718	116,644	90,938	349	705	2,069,358
Non-Christian ... ..	3,808	3,224	563	442	937	71	106	...	9,151
Indefinite ... ..	1,143	1,877	435	344	332	142	2	...	4,275
No Religion ... ..	481	531	311	221	186	41	6	...	1,777
Object to State ... ..	6,997	7,758	3,611	5,331	1,598	1,921	12	9	27,237
Unspecified ... ..	2,762	3,306	1,492	1,144	852	507	101	8	10,172
Total ... ..	789,036	659,960	276,307	201,200	120,549	93,620	576	722	2,141,970
PERSONS.									
Christian ... ..	1,594,329	1,267,053	575,824	386,543	263,760	183,840	1,399	1,666	4,274,414
Non-Christian ... ..	12,773	8,842	6,190	1,431	5,850	336	1,362	1	36,785
Indefinite ... ..	4,211	5,224	2,097	1,135	1,555	426	22	3	14,673
No Religion ... ..	2,952	2,641	1,906	1,008	1,260	210	37	2	10,016
Object to State ... ..	21,986	21,970	12,592	15,261	6,145	4,929	98	22	83,003
Unspecified ... ..	10,483	9,821	7,204	3,180	3,544	1,470	392	20	36,114
Total ... ..	1,646,734	1,315,551	605,813	408,558	282,114	191,211	3,310	1,714	4,455,005

The accompanying table furnishes for the Censuses of 1891, 1901, and 1911, a comparison of the numbers recorded in the principal denominations and religions. An unsatisfactory feature of the table is the large number who stated their religion simply as "Protestant" or "Catholic." Presumably, the majority of the latter were "Roman Catholic," but an appropriate allocation of the undefined Protestants could not readily be made. The returns for 1911 included no fewer than 109,861 Protestants (undefined) and 75,379 Catholics (undefined).

**POPULATION OF THE COMMONWEALTH AT THE CENSUSES of 1891, 1901, and 1911,  
CLASSIFIED ACCORDING TO RELIGION AND SEX.**

(EXCLUSIVE OF FULL-BLOODED ABORIGINALS.)

RELIGION.	MALES.			FEMALES.			PERSONS.		
	Census of 5th April, 1891.	Census of 31st Mch., 1901.	Census of 3rd April, 1911.	Census of 5th April, 1891.	Census of 31st Mch., 1901.	Census of 3rd April, 1911.	Census of 5th April, 1891.	Census of 31st Mch., 1901.	Census of 3rd April, 1911.
<b>I. CHRISTIAN—</b>									
Church of England	660,126	783,413	884,634	574,087	714,163	825,809	1,234,213	1,497,576	1,710,443
Presbyterian	187,328	221,601	289,591	164,592	204,504	268,745	351,920	426,105	558,336
Methodist	199,597	251,611	269,641	197,769	252,490	278,165	397,366	504,101	547,806
Baptist	35,129	42,662	45,661	37,149	46,676	51,413	72,278	89,338	97,074
Congregational	36,289	35,603	35,367	36,426	37,958	38,679	79,715	73,661	74,046
Lutheran	41,795	43,329	40,993	29,031	31,692	31,402	70,826	75,021	72,305
Church of Christ	7,128	11,265	17,383	7,714	12,927	21,366	14,842	24,192	38,748
Salvation Army	16,206	14,803	12,322	16,625	16,298	14,343	33,431	31,100	26,665
Seventh Day Advent	336	1,411	2,536	377	1,921	3,559	713	3,332	6,095
Unitarian	2,501	1,620	1,307	1,398	1,009	868	3,899	2,629	2,175
Protestant (undef'd)	17,416	11,485	63,079	13,449	9,073	46,782	29,865	20,558	109,861
Roman Catholic	363,780	433,504	465,803	341,627	417,116	455,622	705,407	850,620	921,425
Greek Catholic	559	1,075	2,172	63	239	474	622	1,314	2,646
Catholic (undefined)	4,351	2,748	38,772	4,089	2,431	36,607	8,440	5,179	75,379
Others	10,252	10,944	15,796	9,150	10,879	15,524	19,402	21,823	31,320
<b>TOTAL</b>	<b>1,583,393</b>	<b>1,867,073</b>	<b>2,185,056</b>	<b>1,432,536</b>	<b>1,759,376</b>	<b>2,089,358</b>	<b>3,015,929</b>	<b>3,626,449</b>	<b>4,274,414</b>
<b>II. NON-CHRISTIAN—</b>									
Hebrew	7,634	8,137	9,165	6,171	7,102	8,122	13,805	15,239	17,287
Confucian			5,036			158			5,194
Mohammedan			3,706			202			3,908
Buddhist	41,427	34,712	3,110	1,339	954	159	42,766	35,666	3,269
Pagan			1,422			25			1,447
Others	303	1,784	5,195	69	682	485	372	2,466	5,680
<b>TOTAL</b>	<b>49,364</b>	<b>44,633</b>	<b>27,634</b>	<b>7,579</b>	<b>8,738</b>	<b>9,151</b>	<b>56,943</b>	<b>53,371</b>	<b>36,785</b>
<b>III. INDEFINITE—</b>									
Freethinker	12,551	7,863	2,753	2,934	1,319	501	15,485	9,182	3,254
Agnostic	728	834	2,546	134	137	538	862	971	3,084
No Denomination	9,408	13,620	1,568	3,824	6,137	1,120	13,232	19,757	2,688
Others	1,078	638	3,531	653	463	2,116	1,731	1,101	5,647
<b>TOTAL</b>	<b>23,765</b>	<b>22,955</b>	<b>10,398</b>	<b>7,545</b>	<b>8,056</b>	<b>4,275</b>	<b>31,310</b>	<b>31,011</b>	<b>14,673</b>
<b>IV. NO RELIGION—</b>									
No Religion	5,648	5,149	7,559	1,421	1,333	1,692	7,069	6,482	9,251
Atheist	574	245	516	213	29	63	787	274	579
Others	169	19	164	59	4	22	228	23	186
<b>TOTAL</b>	<b>6,391</b>	<b>5,413</b>	<b>8,239</b>	<b>1,693</b>	<b>1,366</b>	<b>1,777</b>	<b>8,084</b>	<b>6,779</b>	<b>10,016</b>
<b>V. OBJECT TO STATE</b>	<b>26,307</b>	<b>28,443</b>	<b>55,766</b>	<b>13,093</b>	<b>13,688</b>	<b>27,237</b>	<b>39,400</b>	<b>42,131</b>	<b>83,003</b>
<b>VI. UNSPECIFIED</b>	<b>14,819</b>	<b>9,411</b>	<b>25,942</b>	<b>7,907</b>	<b>4,649</b>	<b>10,172</b>	<b>22,726</b>	<b>14,060</b>	<b>36,114</b>
<b>GRAND TOTAL</b>	<b>1,704,039</b>	<b>1,977,928</b>	<b>2,313,035</b>	<b>1,470,353</b>	<b>1,795,873</b>	<b>2,141,970</b>	<b>3,174,392</b>	<b>3,773,801</b>	<b>4,455,005</b>

6. **Conjugal Condition.**—In the following tables particulars are given concerning the population of the several States and Territories on 3rd April, 1911, classified according to conjugal condition and age:—

**AUSTRALIAN POPULATION AT 3rd APRIL, 1911, CLASSIFIED ACCORDING TO CONJUGAL CONDITION AND AGE.**

**MALES.**

Age Group.	States.						Territories.		Total C'wealth.
	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	North- ern.	Fed- eral.	
NEVER MARRIED.									
Under 15 ...	266,274	202,261	101,246	64,168	44,305	34,029	242	273	712,798
15 & under 21	99,446	80,655	39,270	25,648	14,432	11,630	106	119	271,306
21     "     45	153,938	113,648	65,276	36,380	38,446	14,707	733	225	423,353
45     "     65	27,381	18,713	13,684	4,749	7,294	2,158	862	52	74,893
65 & upwards	7,222	5,527	2,954	938	942	413	63	10	18,069
Unspecified	2,089	1,800	1,148	459	641	263	54	4	6,458
Total	556,350	422,604	223,578	132,342	106,060	63,200	2,060	683	1,506,877
MARRIED.									
Under 15 ...	2	1	...	...	...	...	...	...	3
15 & under 21	1,097	566	260	210	99	114	1	...	2,347
21     "     45	157,224	111,942	54,549	37,708	32,725	17,488	236	125	411,997
45     "     65	95,496	79,536	34,056	24,987	15,630	11,291	304	114	261,414
65 & upwards	20,086	18,594	7,159	5,879	1,997	2,389	32	33	56,169
Unspecified	1,523	1,111	522	318	251	188	2	4	3,919
Total	275,428	211,750	96,546	69,102	50,702	31,470	575	276	735,849
WIDOWED.									
Under 15 ...	...	...	...	...	...	...	...	...	...
15 & under 21	8	2	2	2	1	...	...	...	15
21     "     45	3,951	2,956	1,540	865	1,153	402	12	6	10,885
45     "     65	9,855	7,496	3,740	2,268	2,029	1,102	46	15	26,551
65 & upwards	8,903	9,220	3,169	2,457	962	1,021	6	9	25,747
Unspecified	170	146	62	35	35	28	1	...	477
Total	22,887	19,820	8,513	5,627	4,180	2,553	65	30	63,675
DIVORCED.									
Under 15 ...	...	...	...	...	...	...	...	...	...
15 & under 21	...	...	...	1	1	...	...	...	2
21     "     45	569	258	115	45	99	24	...	...	1,110
45     "     65	566	267	81	39	77	31	1	...	1,062
65 & upwards	81	41	9	7	6	3	...	1	148
Unspecified	14	9	9	1	4	1	...	...	38
Total	1,230	575	214	93	187	59	1	1	2,360

## AUSTRALIAN POPULATION AT 3RD APRIL, 1911.—Continued.

## MALES—Continued.

Age Group.	States.						Territories.		Total C'wealth.
	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	North- ern.	Fed- eral.	
NOT STATED.									
Under 15 ...	...	...	...	...	...	...	...	...	...
15 & under 21	...	...	...	...	...	...	...	...	...
21 „ 45	781	375	231	61	146	158	21	2	1,775
45 „ 65	252	189	155	24	60	77	8	...	765
65 & upwards	76	85	28	4	9	22	1	...	225
Unspecified	694	193	241	105	221	52	3	...	1,509
Total	1,803	842	655	194	436	309	33	2	4,274

## FEMALES.

NEVER MARRIED.									
Under 15 ...	259,975	196,838	98,389	62,681	43,229	32,598	235	275	694,220
15 & under 21	90,844	78,170	34,851	24,409	11,969	10,919	63	104	251,329
21 " 45	103,042	101,293	32,510	28,098	12,199	11,209	43	66	288,460
45 " 65	10,689	15,274	2,030	3,288	1,048	1,563	2	1	33,895
65 & upwards	1,868	2,027	322	543	110	330	...	1	5,201
Unspecified	1,185	1,255	377	311	252	174	3	4	3,561
Total	467,603	394,857	168,479	119,330	68,807	56,793	346	451	1,276,666

## MARRIED.

Under 15 ...	6	6	4	2	...	1	...	...	19
15 & under 21	6,977	3,303	2,280	1,166	988	818	18	2	15,552
21 " 45	181,426	134,801	62,181	43,392	33,554	20,063	147	141	475,705
45 " 65	74,473	65,795	24,769	20,798	9,945	9,048	39	70	204,937
65 & upwards	11,245	10,748	3,998	3,521	917	1,338	2	16	31,785
Unspecified	2,089	1,812	682	506	376	305	1	4	5,775
Total	276,216	216,465	93,914	69,385	45,780	31,573	207	233	733,773

## WIDOWED.

Under 15 ...	...	...	...	...	...	...	...	...	...
15 & under 21	29	25	9	6	7	5	...	...	81
21 " 45	6,936	6,143	2,487	1,469	1,407	666	9	5	19,122
45 " 65	19,234	19,329	6,200	5,090	2,617	2,060	6	17	54,553
65 & upwards	16,959	21,515	4,924	5,657	1,692	2,306	4	15	53,072
Unspecified	413	504	100	112	62	49	...	...	1,240
Total	43,571	47,516	13,720	12,334	5,785	5,086	19	37	128,068

AUSTRALIAN POPULATION AT 3RD APRIL, 1911—Continued.  
FEMALES—Continued.

Age Group.	States.						Territories.		Total C'wealth.
	N.S.W.	Vict.	Q'land.	S. Aust.	W. Aust.	Tas.	North-ern.	Fed-eral.	
DIVORCED.									
Under 15 ...	...	...	...	...	...	...	...	...	...
15 & under 21	4	4	...	...	...	...	...	...	8
21 „ 45	774	396	57	34	76	21	...	1	1,359
45 „ 65	360	231	24	24	26	12	...	...	677
65 & upwards	36	27	4	3	...	1	...	...	71
Unspecified	16	7	...	1	1	...	...	...	25
Total	1,190	665	85	62	103	34	...	1	2,140

**NOT STATED.**

Under 15 ...	...	...	...	...	...	...	...	...	...
15 & under 21 ...	96	62	20	24	10	9	2	...	223
21 " 45	186	113	42	29	32	59	2	...	463
45 " 65	48	41	16	6	2	46	...	...	159
65 & upwards	26	39	6	6	1	18	...	...	96
Unspecified...	100	202	25	24	29	2	...	...	382
<b>Total ...</b>	<b>456</b>	<b>457</b>	<b>109</b>	<b>89</b>	<b>74</b>	<b>134</b>	<b>4</b>	<b>...</b>	<b>1,323</b>

**SUMMARY OF PERSONS RECORDED IN EACH STATE AND TERRITORY OF THE COMMONWEALTH AT THE CENSUS OF 3RD APRIL, 1911, CLASSIFIED ACCORDING TO CONJUGAL CONDITION AND SEX.**

(EXCLUSIVE OF FULL-BLOODED ABORIGINALS.)

Conjugal Condition.	States.						Territories.		Total C'with.
	N.S.W.	Victoria	Q'land.	S. Aust.	W.Aust.	Tas.	North-ern.	Federal.	
MALES.									
Never married ...	556,350	422,604	223,578	132,342	106,060	63,200	2,060	683	1,506,877
Married ...	275,428	211,750	96,546	69,102	50,702	31,470	575	276	735,849
Widowed ...	22,887	19,820	8,513	5,627	4,180	2,553	65	30	63,675
Divorced...	1,230	575	214	93	187	59	1	1	2,360
Not stated	1,803	842	655	194	436	309	33	2	4,274
Total	857,698	655,591	329,506	207,358	161,565	97,591	2,734	992	2,313,035
FEMALES.									
Never married ...	467,603	394,857	168,470	119,330	68,807	56,793	346	451	1,276,666
Married ...	276,216	216,465	93,914	69,385	45,780	31,573	207	233	733,773
Widowed ...	43,571	47,516	13,720	12,334	5,785	5,066	19	37	128,068
Divorced...	1,190	665	85	62	103	34	...	1	2,140
Not stated	456	457	109	89	74	134	4	...	1,323
Total	789,036	659,960	276,307	201,200	120,549	93,620	576	722	2,141,970
PERSONS.									
Never married ...	1,023,953	817,461	392,057	251,672	174,867	119,993	2,406	1,134	2,783,543
Married ...	551,644	428,215	190,460	138,487	96,482	63,043	782	509	1,469,623
Widowed ...	66,458	67,336	22,233	17,961	9,965	7,639	84	67	191,743
Divorced	2,420	1,240	299	155	290	93	1	2	4,500
Not stated	2,259	1,299	764	283	510	443	37	2	5,597
Total	1,646,734	1,315,551	605,813	408,558	282,114	191,211	3,310	1,714	4,455,005



7. **Education.**—In the following table are contained particulars of the education of the population of the States and Territories of the Commonwealth as at the date of the Census of 3rd April, 1911. Of the total population of 4,455,005, there were 3,650,030, or 81.93 per cent., who were able to read and write in the English language, and 26,210, or 0.59 per cent., who were able to read and write in a foreign language, though unable to read or write English. Of the remainder no fewer than 525,633 were recorded as being under five years of age, all of whom were classed at the Census under the head of "Cannot read."

### EDUCATION OF THE POPULATION OF THE STATES AND TERRITORIES OF THE COMMONWEALTH OF AUSTRALIA

AT THE CENSUS OF 3RD APRIL, 1911 (EXCLUSIVE OF FULL-BLOODED ABORIGINALS).

#### MALES.

States and Territories.	English Language.		Foreign Language only.		Cannot Read.	Not Stated.	Total.
	Read and Write.	Read only.	Read and Write.	Read Only.			
<b>STATES—</b>							
New South Wales ...	696,258	2,565	5,889	497	134,215	18,274	857,698
Victoria ...	547,753	1,271	3,572	532	88,995	13,468	655,591
Queensland ...	265,896	1,136	6,185	678	49,406	6,205	329,506
South Australia ...	169,508	556	1,156	102	31,891	4,145	207,358
Western Australia ...	128,648	311	4,371	303	22,524	5,408	161,565
Tasmania ...	76,247	456	181	20	18,244	2,443	97,591
<b>TERRITORIES—</b>							
Northern ...	1,126	4	852	29	642	81	2,734
Federal... ..	820	9	2	...	140	21	992
<b>Total Commonwealth ...</b>	<b>1,886,256</b>	<b>6,308</b>	<b>22,208</b>	<b>2,161</b>	<b>346,057</b>	<b>50,045</b>	<b>2,313,035</b>

#### FEMALES.

<b>STATES—</b>							
New South Wales ...	645,022	3,140	650	61	123,808	16,355	789,036
Victoria ...	555,675	2,626	665	66	84,449	16,479	659,960
Queensland ...	225,086	1,272	1,772	252	43,787	4,138	276,307
South Australia ...	165,634	993	531	88	29,987	3,967	201,200
Western Australia ...	96,702	256	317	15	20,724	2,535	120,549
Tasmania ...	74,795	409	30	4	16,235	2,147	93,620
<b>TERRITORIES—</b>							
Northern ...	292	...	37	...	203	44	576
Federal... ..	568	5	...	...	132	17	722
<b>Total Commonwealth ...</b>	<b>1,763,774</b>	<b>8,701</b>	<b>4,002</b>	<b>486</b>	<b>319,325</b>	<b>45,682</b>	<b>2,141,970</b>

#### PERSONS.

<b>STATES—</b>							
New South Wales ...	1,341,280	5,705	6,539	558	258,023	34,629	1,646,734
Victoria ...	1,103,428	3,897	4,237	598	173,444	29,947	1,315,551
Queensland ...	490,982	2,408	7,957	930	93,198	10,343	605,813
South Australia ...	335,142	1,549	1,687	190	61,878	8,112	408,558
Western Australia ...	225,350	567	4,688	318	43,248	7,943	282,114
Tasmania ...	151,042	865	211	24	34,479	4,590	191,211
<b>TERRITORIES—</b>							
Northern ...	1,418	4	889	29	845	125	3,310
Federal... ..	1,388	14	2	...	272	38	1,714
<b>Total Commonwealth ...</b>	<b>3,650,030</b>	<b>15,009</b>	<b>26,210</b>	<b>2,647</b>	<b>665,382</b>	<b>95,727</b>	<b>4,455,005</b>

GRAPHS OF TOTAL POPULATION OF THE COMMONWEALTH OF AUSTRALIA  
AND EACH STATE THEREIN, 1788-1917.



(See Tables pages 102 to 104.)

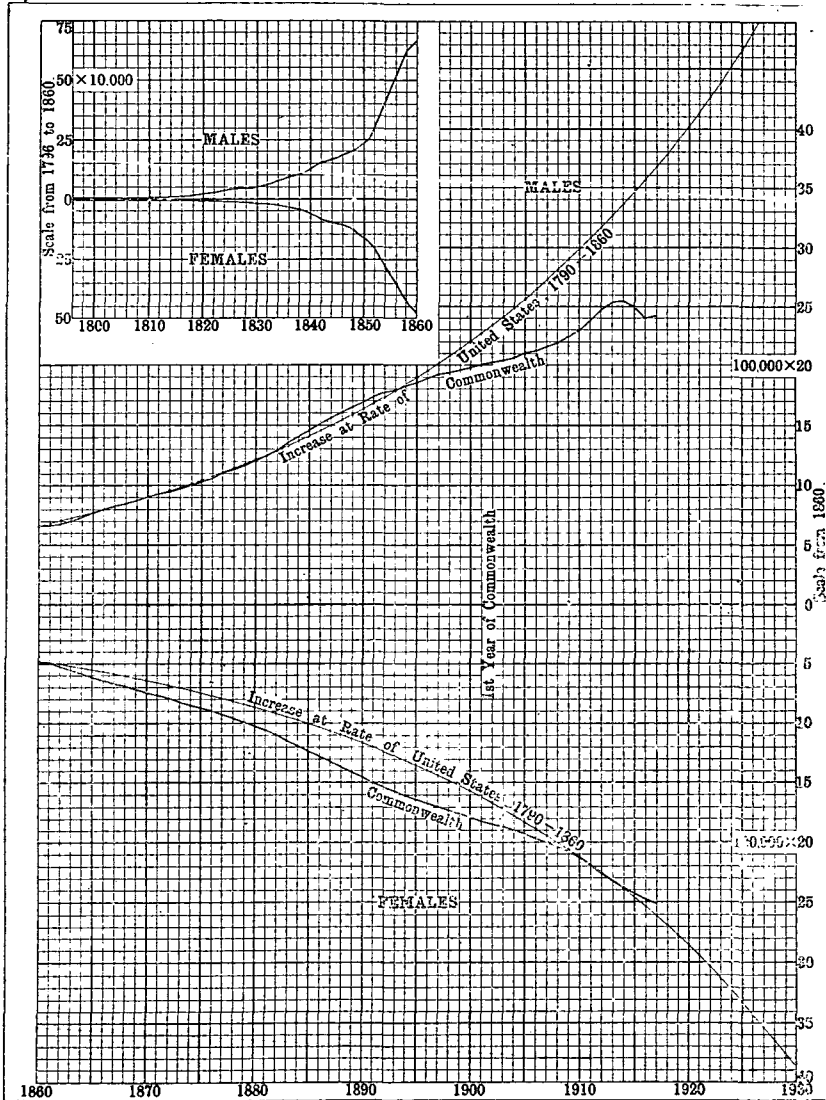
**EXPLANATION OF GRAPHS.**—The base of each small square represents two years' interval for both States and Commonwealth; and the vertical height 80,000 persons for Commonwealth or 20,000 for States. The zero line for the States is the bottom line; for the Commonwealth it is the line marked "Commonwealth." The scale on the left above the Commonwealth zero line relates to the Commonwealth, and that on the right relates to the States.

Where the population falls suddenly the fall denotes the creation of a new colony, e.g., New South Wales 1825, loses the whole population of Tasmania, then erected into a separate colony.

The curves are as follows:—Commonwealth, an unbroken line; New South Wales, — — — — —; Victoria, — — — — —; Queensland, — — — — —; South Australia, — — — — —; Western Australia, — — — — —; Tasmania, — — — — —; the names on the curves also shew which State each represents.

From 1860 onwards is shewn, for the purpose of comparison, the manner in which the population of the Commonwealth would have grown from 1860 to 1914 if, during that period, there had been in operation the rate of increase actually experienced in the United States from 1790 to 1860.

GRAPHS OF MALE AND FEMALE POPULATIONS, COMMONWEALTH OF AUSTRALIA, 1796-1917.



(See Tables pages 102 to 104.)

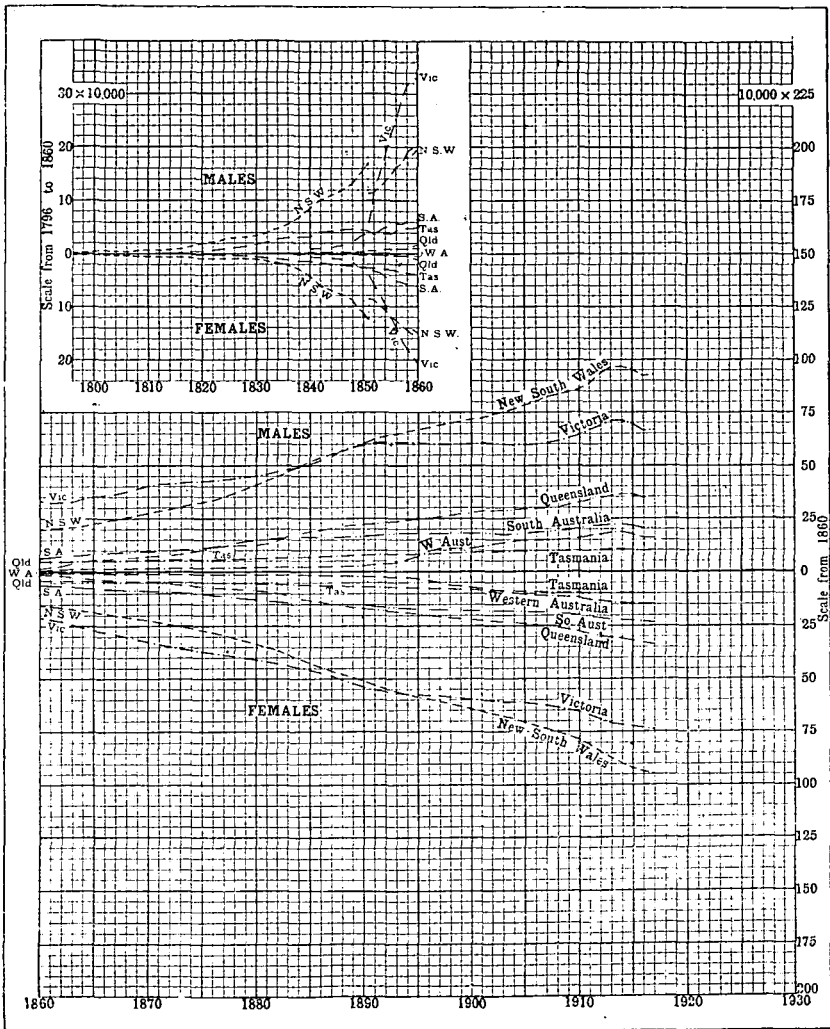
**EXPLANATION OF GRAPHS.—1796-1860.** The base of each small square represents two years' interval, and the vertical height 50,000 persons. The distances upward from the zero line denote the number of males, and downward the number of females.

**1860 onward.** The base of each small square represents one year's interval, and the vertical height 100,000 persons.

From 1860 onward is shewn, for purposes of comparison, the manner in which the numbers of each sex in the Commonwealth would have grown from 1860, if, during that period, there had been in operation the rate of increase actually experienced in the United States from 1790 to 1860.

The asymmetry of the two series of graphs reveals the want of uniformity in the increase of the two sexes.

# GRAPHS OF MALE AND FEMALE POPULATION OF THE STATES OF AUSTRALIA, 1796-1917.



(See Table page 102.)

## EXPLANATION OF GRAPHS.

1796-1860.—The base of each small square represents two years' interval, and the vertical height 20,000 persons. The distances upward from the zero line represent the number of males, and downward the number of females.

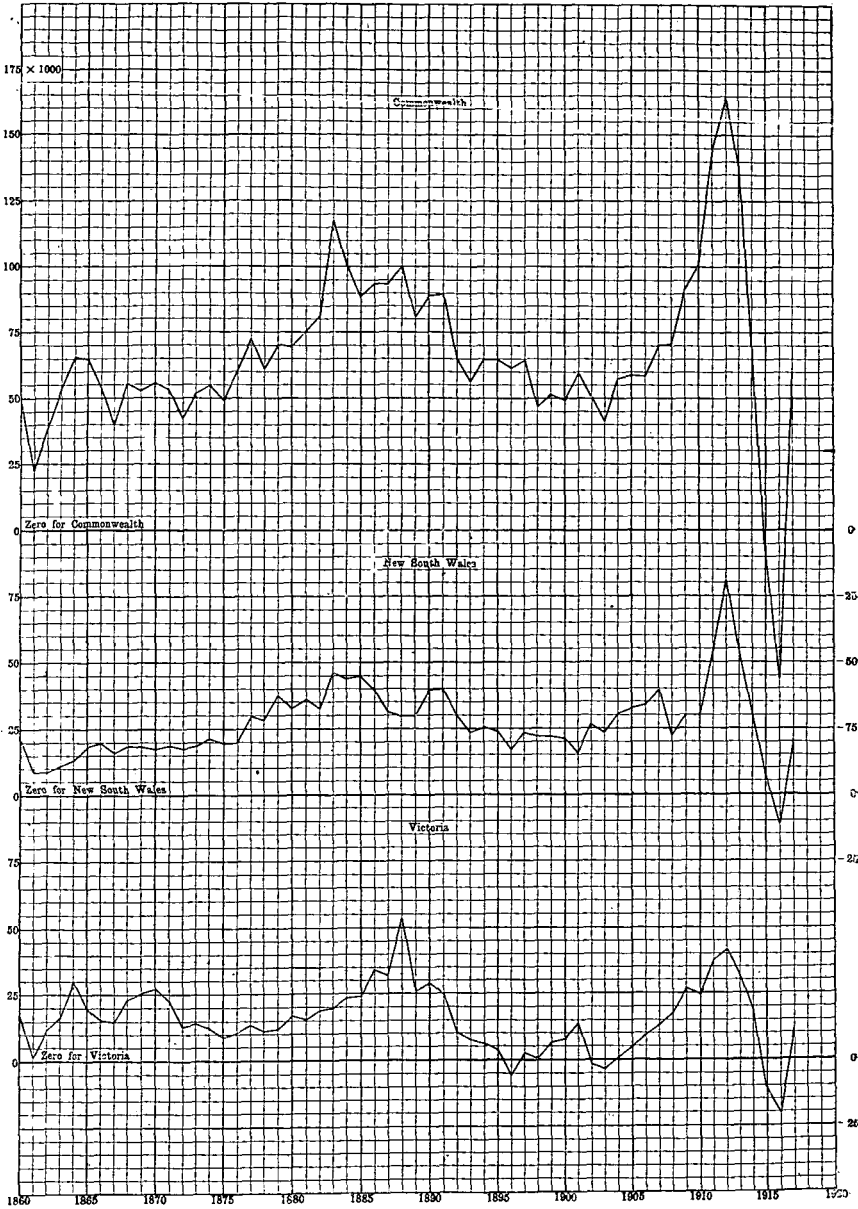
The sudden falls denote the creation of new colonies.

1860 onward.—The base of each small square represents one year's interval, and the vertical height 50,000 persons.

The names on the curves denote the States to which they refer, and the curves are as follows:—New South Wales, — — —; Victoria, — — — —; Queensland, — — — — —; South Australia, — — — — —; Western Australia, — — — — —; Tasmania, — — — — —.

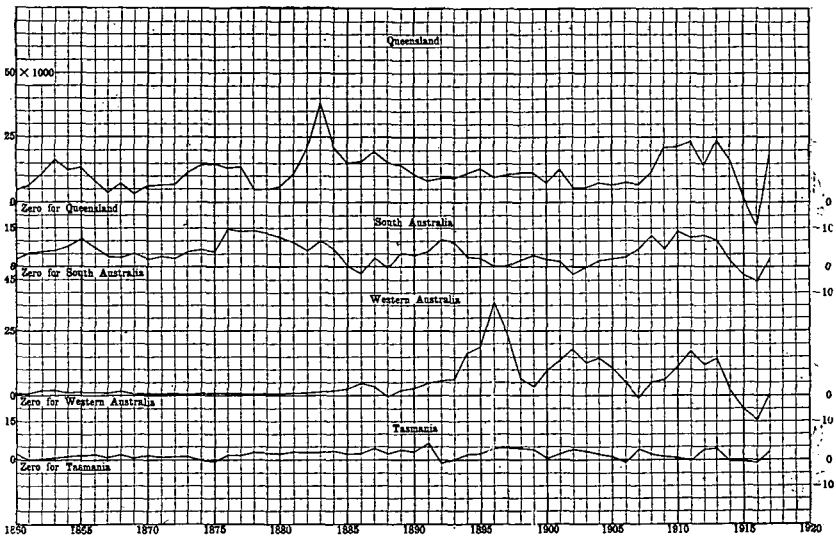
The asymmetry of the two series of graphs reveals the want of uniformity in the increase of the two sexes.

GRAPHS ~~SHOWING~~ TOTAL INCREASE OF POPULATION OF THE COMMONWEALTH OF AUSTRALIA AND THE STATES OF NEW SOUTH WALES AND VICTORIA, 1860-1917.



(For explanation see foot of next page.)

GRAPHS SHEWING TOTAL INCREASE OF POPULATION OF THE STATES OF QUEENSLAND, SOUTH AUSTRALIA, WESTERN AUSTRALIA, AND TASMANIA, 1860-1917.



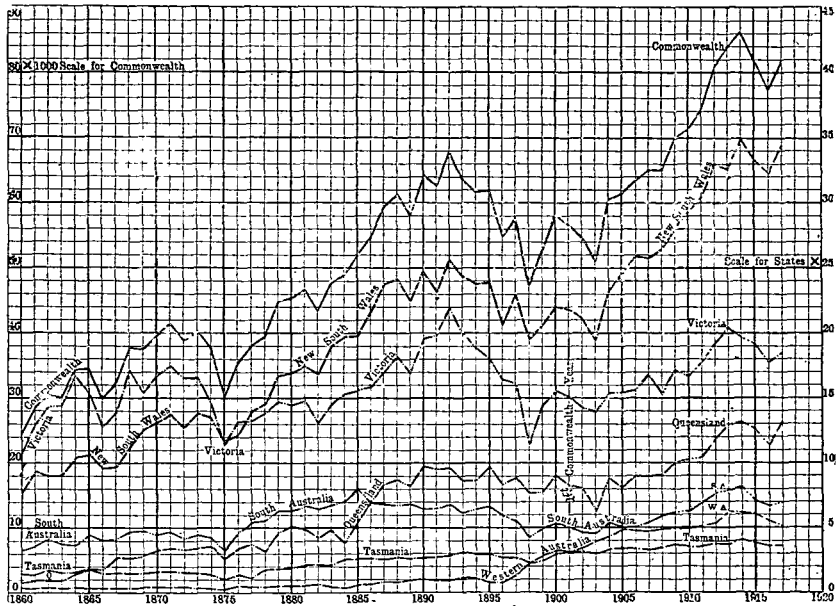
EXPLANATION OF GRAPHS SHEWING NET INCREASE.—The base of each small square represents an interval of a year for both States and Commonwealth; the vertical height represents 5000 for the Commonwealth and the States. In the first graph (on page 148) three zero lines are taken (i.) for the Commonwealth, (ii.) for New South Wales, and (iii.) Victoria. In the second graph four zero lines are taken (i.) for Queensland, (ii.) for South Australia, (iii.) for Western Australia, and (iv.) for Tasmania.

DECREASES in population are shown by carrying the graph in such cases below the zero line, the distance of the graph below the zero line indicating the extent of the decrease. The scales in these instances are on the right hand of the graph.

The names above the curves denote the States to which they belong.

(See Table page 119.)

GRAPHS OF NATURAL INCREASE OF THE POPULATION OF THE COMMONWEALTH  
AND STATES OF AUSTRALIA, 1860-1917.

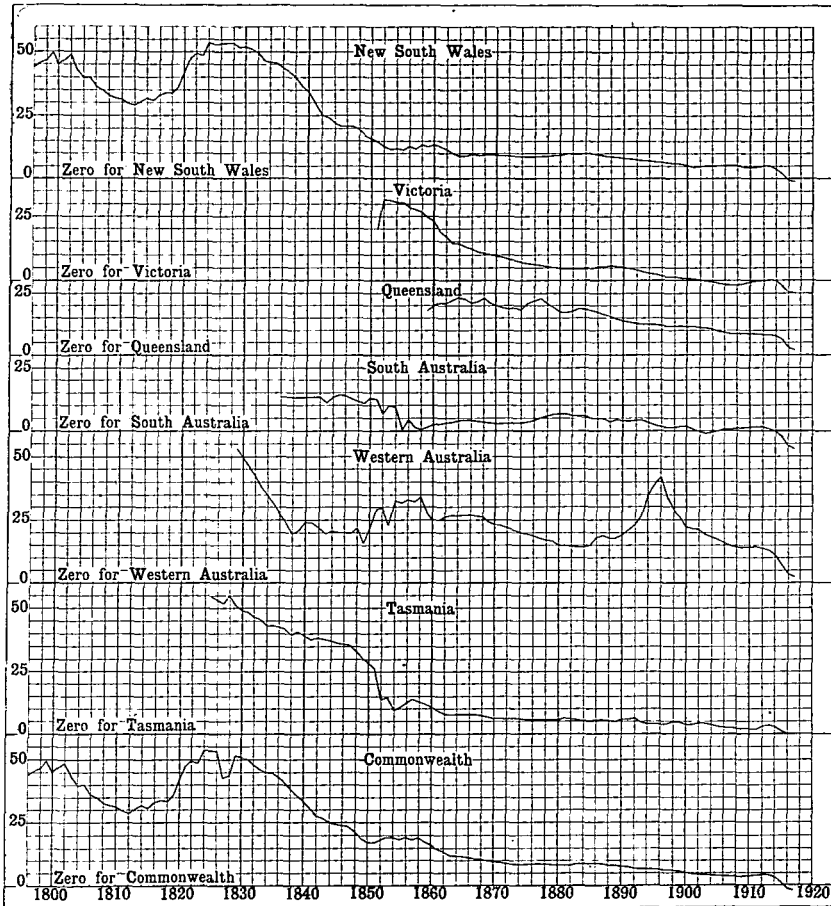


EXPLANATION OF GRAPHS.—The base of each small square represents one year for both States and Commonwealth, and the vertical height 1000 persons for the States and 2000 persons for the Commonwealth.

The distances upward from the zero line, marked 0 for both Commonwealth and States, denote the excess of births over deaths. The scale on the left relates to the Commonwealth, and that on the right to the States. The names shew the States to which the curves refer, they are as follows:—Commonwealth ———; New South Wales, ———; Victoria, ———; Queensland, ———; South Australia, ———; Western Australia, ———; Tasmania, ———.

(See Table page 115.)

GRAPHS SHEWING MASCULINITY OF THE POPULATION OF THE  
COMMONWEALTH AND STATES OF AUSTRALIA, 1796-1917.



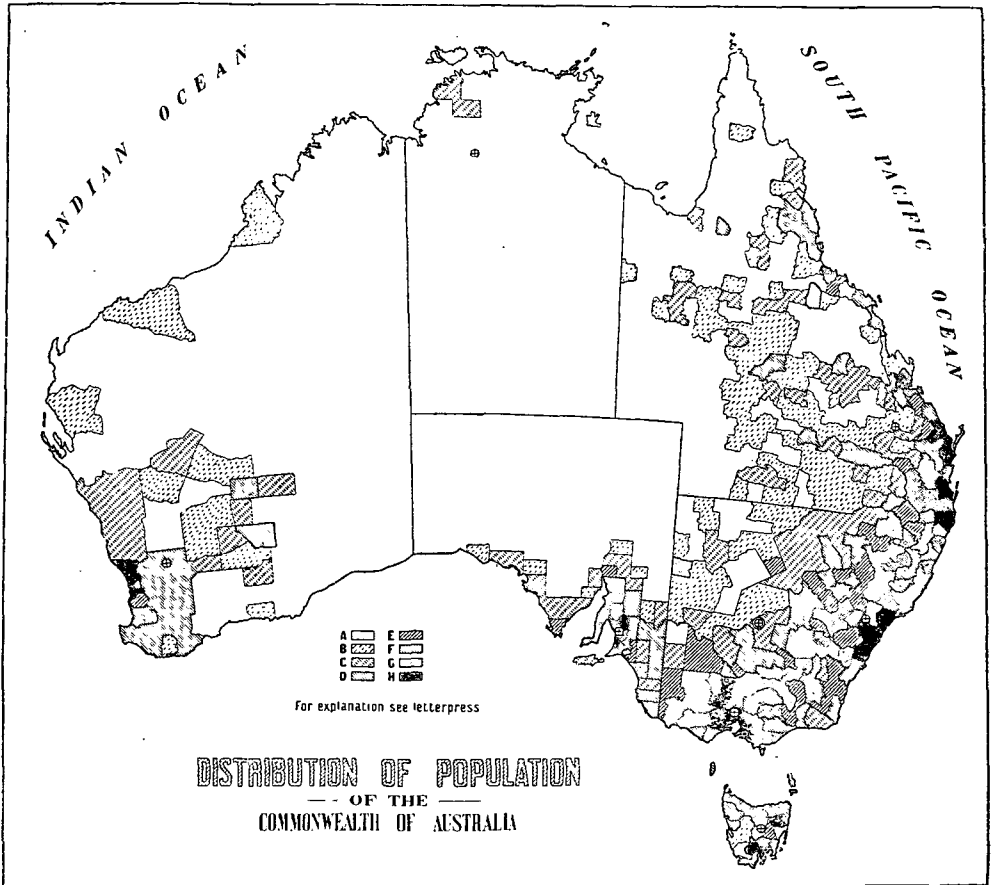
(See Table page 107.)

EXPLANATION OF GRAPHS.—The base of each small square represents an interval of two years and the vertical height an excess of five males per 100 of population. The basic lines (shewn thickened) for Commonwealth and all the States are at zero, equivalent to a numerical equality of the sexes.

It will be noticed that in the case of New South Wales, Tasmania, and the Commonwealth in the years 1916 and 1917, Victoria in the years 1903 to 1912 and 1914 to 1917, and South Australia in the years 1902 to 1904 and 1914 to 1917, the curves are below the zero line, thus shewing an excess of females over males.



DISTRIBUTION OF POPULATION THROUGHOUT THE COMMONWEALTH OF  
AUSTRALIA, ACCORDING TO CENSUS OF 1911.



The map above furnishes a graphic representation of the distribution of the population of the Commonwealth at the date of the census of 1911. For this purpose the density of the population has been computed for the counties of each State, and the areas representing these counties have been shaded in accordance with the following scale of density:—

A	—Less than 1 inhabitant to 16 sq. miles	
B	—From 1 inhabitant in 16 sq. miles to less than 1 in 4 sq. miles	
C	— " 1 " " 4 " " 1 in 1 sq. mile	
D	— " 1 " " 1 sq. mile " 2 in 1 " "	
E	— " 2 inhabitants in 1 " " 4 in 1 " "	
F	— " 4 " " 1 " " 8 in 1 " "	
G	— " 8 " " 1 " " 16 in 1 " "	
H	—16 inhabitants and upwards in 1 square mile	

Small circles with cross in each State represent the "centre of gravity" of the population for each State.

From the following table, which gives for the Commonwealth as a whole, particulars of education in conjunction with age, it will be seen that the major portion of those who were unable to read were under the age of 9. Of persons aged 20 and upwards only about 2½ per cent. were unable to read.

**POPULATION OF THE COMMONWEALTH OF AUSTRALIA AT THE CENSUS OF  
3rd APRIL, 1911, CLASSIFIED ACCORDING TO EDUCATION AND AGE.**

(EXCLUSIVE OF FULL-BLOODED ABORIGINALS.)

**MALES.**

Age.	English Language.		Foreign Language only.		Cannot Read.	Not Stated.	Total.
	Read and Write.	Read only.	Read and Write.	Read only.			
0-4 ... ..	...	...	...	...	267,411	...	267,411
5-9 ... ..	177,463	1,131	53	24	39,764	11,151	229,586
10-14 ... ..	212,935	89	146	9	1,444	1,181	215,804
15-19 ... ..	221,279	109	800	46	1,813	2,784	226,831
20 and upwards	1,266,625	4,911	20,813	2,062	34,307	32,284	1,361,002
Unspecified ...	7,954	68	396	20	1,318	2,645	12,401
Total ... ..	1,886,256	6,308	22,208	2,161	346,057	50,045	2,313,035

**FEMALES.**

0-4 ... ..	...	...	...	...	258,222	...	258,222
5-9 ... ..	173,567	1,116	46	8	36,536	12,387	223,660
10-14 ... ..	209,904	75	95	6	1,062	1,215	212,357
15-19 ... ..	218,273	50	101	5	847	2,429	221,705
20 and upwards	1,153,611	7,375	3,735	462	21,819	28,041	1,215,043
Unspecified ...	8,419	85	25	5	839	1,610	10,983
Total ... ..	1,763,774	8,701	4,002	486	319,325	45,682	2,141,970

**PERSONS.**

0-4 ... ..	...	...	...	...	525,633	...	525,633
5-9 ... ..	351,030	2,247	99	32	76,300	23,538	453,246
10-14 ... ..	422,839	164	241	15	2,506	2,396	428,161
15-19 ... ..	439,552	159	901	51	2,660	5,213	448,536
20 and upwards	2,420,236	12,286	24,548	2,524	56,126	60,325	2,576,045
Unspecified ...	16,373	153	421	25	2,157	4,255	23,384
Total ... ..	3,650,030	15,009	26,210	2,647	665,382	95,727	4,455,005

**8. School Attendances.**—In the following table are set out particulars of school attendances of children aged last birthday from 6 to 13 years at the Census of 3rd April, 1911 :—

**SCHOOL ATTENDANCES OF CHILDREN AGED LAST BIRTHDAY FROM 6 to 13 YEARS  
IN THE STATES AND TERRITORIES OF THE COMMONWEALTH OF AUSTRALIA  
AT THE CENSUS OF 3RD APRIL, 1911 (EXCLUSIVE OF FULL-BLOODED  
ABORIGINALS).**

NOTE —In this table the term "State School" comprises all schools, whether primary or secondary, which are under the direct control of the State.

States and Territories.	Number being educated at—			Number recorded as "scholar," but class of school not stated	Number not indicated as receiving instruction.	Total.
	State School.	Private School.	Home.			

<b>MALES.</b>						
<b>STATES—</b>						
New South Wales ...	91,979	19,107	3,436	3,809	11,574	129,905
Victoria ...	78,185	15,367	1,198	1,826	6,031	102,607
Queensland ...	38,167	5,184	1,517	904	5,089	50,861
South Australia ...	22,817	3,548	521	380	4,409	31,675
Western Australia ...	15,289	3,239	556	508	1,653	21,247
Tasmania ...	11,042	2,113	459	485	2,832	16,931
<b>TERRITORIES—</b>						
Northern ...	32	25	9	1	56	123
Federal ...	98	...	22	4	25	149
<b>Total Commonwealth</b> ...	<b>257,609</b>	<b>48,583</b>	<b>7,720</b>	<b>7,917</b>	<b>31,669</b>	<b>353,498</b>

<b>FEMALES.</b>						
<b>STATES—</b>						
New South Wales ...	84,129	23,329	4,191	3,279	12,802	127,730
Victoria ...	73,136	17,447	1,602	1,832	6,493	100,510
Queensland ...	35,656	6,765	1,713	1,032	4,759	49,925
South Australia ...	21,343	4,005	631	762	4,293	31,034
Western Australia ...	13,906	4,015	681	404	1,813	20,819
Tasmania ...	10,267	2,496	594	477	2,501	16,335
<b>TERRITORIES—</b>						
Northern ...	32	20	6	...	69	127
Federal ...	85	3	13	5	27	133
<b>Total Commonwealth</b> ...	<b>238,554</b>	<b>58,080</b>	<b>9,431</b>	<b>7,791</b>	<b>32,757</b>	<b>346,613</b>

<b>PERSONS.</b>						
<b>STATES—</b>						
New South Wales ...	176,108	42,436	7,627	7,088	24,376	257,635
Victoria ...	151,321	32,814	2,800	3,658	12,524	203,117
Queensland ...	73,823	11,949	3,230	1,936	9,848	100,786
South Australia ...	44,160	7,553	1,152	1,142	8,702	62,709
Western Australia ...	29,195	7,254	1,239	912	3,466	42,066
Tasmania ...	21,309	4,609	1,053	962	5,333	33,266
<b>TERRITORIES—</b>						
Northern ...	64	45	15	1	125	250
Federal ...	183	3	35	9	52	282
<b>Total Commonwealth</b> ...	<b>496,163</b>	<b>106,663</b>	<b>17,151</b>	<b>15,708</b>	<b>64,426</b>	<b>700,111</b>

9. **Blind Persons and Deaf Mutes.**—The following table contains particulars of the number of blind persons and deaf mutes as recorded at the date of the Census of 3rd April, 1911 :—

**NUMBER OF BLIND PERSONS AND DEAF MUTES IN THE SEVERAL STATES  
OF THE COMMONWEALTH**

AT THE CENSUS OF 3RD APRIL, 1911 (EXCLUSIVE OF FULL-BLOODED  
ABORIGINALS).

States.	Blind.			Deaf and Dumb.		
	Males.	Females.	Persons.	Males.	Females.	Persons.
New South Wales ... ..	591	420	1,011	330	310	640
Victoria ... ..	595	507	1,102	280	255	535
Queensland ... ..	213	170	383	160	97	257
South Australia ... ..	192	166	358	134	112	246
Western Australia ... ..	35	57	142	40	36	76
Tasmania ... ..	78	68	146	54	44	98
Total Commonwealth ...	1,754	1,388	3,142(a)	998	854	1,852(a)

(a) Including 21 blind deaf mutes.

## § 11. Naturalisation.

1. **The Commonwealth Act.**—The Commonwealth Constitution empowers the Commonwealth Parliament to make laws with respect to “Naturalisation and Aliens,” a power which was exercised when the “Naturalisation Act of 1903” was passed. This Act was assented to on 13th October of that year, and came into force on 1st January, 1904, in accordance with a proclamation by *Gazette* of 14th November, 1903.

Prior to the passing of this Act the issue of certificates of naturalisation had been a function of the State Governments, carried out under Acts of the several State Legislatures, which, however, did not differ materially from each other, and furnished the basis on which the Commonwealth Act was drafted. From 1st January, 1904, when the Commonwealth Act became operative, the right to issue certificates of naturalisation in the Commonwealth has been vested exclusively in the Federal Government, but all certificates or letters of naturalisation issued under the several State Acts prior to that date entitle the recipients to be deemed to be naturalised under the Commonwealth Act.

The grant of a certificate of naturalisation entitles the recipient within the limits of the Commonwealth to all the rights and privileges, and renders him subject to all the obligations, of a natural-born British subject, with the exception that where, by any Commonwealth or State Constitution or Act, a distinction is made between natural-born British subjects and naturalised persons, such distinction shall hold good in the case of all persons naturalised under the Commonwealth Act.

Applications for certificate of naturalisation must be made to the Governor-General, the qualifications required in an applicant being :—

- (i.) That he is not a British subject.
- (ii.) That he is not an aboriginal native of Asia, Africa, or the Islands of the Pacific, excepting New Zealand.

- (iii.) That he intends to settle in the Commonwealth.
- (iv.) (a) That he has resided in Australia continuously for two years immediately preceding naturalisation ; or
- (b) That he has obtained in the United Kingdom a certificate or letters of naturalisation.

An applicant who has already obtained a certificate or letters of naturalisation in the United Kingdom is required to furnish, in support of his application—

- (i.) His certificate or letters of naturalisation.
- (ii.) His statutory declaration—
  - (a) That he is the person named therein.
  - (b) That he obtained the certificate or letters without fraud or intentional false statement.
  - (c) That the signature and seal thereto are, to the best of his knowledge and belief, genuine.
  - (d) That he intends to settle in the Commonwealth.

If the applicant is not already naturalised in the United Kingdom the particulars which he is required to furnish in support of his application are as follows:—

- (i.) His own statutory declaration stating—
  - (a) Name; (b) Date of birth; (c) Birthplace; (d) Occupation; (e) Residence; (f) Length of residence in Australia; (g) Intention to settle in the Commonwealth.
- (ii.) A certificate signed by a Justice of the Peace, a postmaster, a teacher of a State school, or an officer of police, that the applicant is known to him and is of good repute.

In connexion with any application for naturalisation, the Governor-General in Council is authorised to grant or withhold a certificate as he thinks most conducive to the public good, but the issue of a certificate to any person who is not already naturalised in the United Kingdom is not admissible until the applicant has taken an oath or affirmation of allegiance. The grant of a certificate is made free of charge.

In addition to naturalisation by grant of certificate, the Act makes provision for—

- (i.) Naturalisation by marriage.
- (ii.) Naturalisation by residence with naturalised parent.

The former relates to the case of a woman who is not herself a British subject, but is married to a British subject; the latter to that of an infant who is not a natural-born British subject, but who has resided at any time in Australia with a father or mother who is a naturalised British subject. In each instance the person concerned is deemed to be naturalised under the Commonwealth Act.

The administration of the Act is carried out by the Home and Territories Department, and the Governor-General is authorised to make such regulations as are necessary or convenient for giving effect to the Act.

**2. Statistics of Naturalisation.**—Particulars relative to the nationalities of the recipients of certificates of naturalisation issued under the Act during each of the five years 1912 to 1916, and to the countries from which such recipients had come, are shewn in the following table:—

## COMMONWEALTH NATURALISATION CERTIFICATES GRANTED, 1912 to 1916.

Nationalities of Recipients.	No. of Certificates Granted.					Countries from which Recipients of Commonwealth Certificates had come.	No. of Certificates Granted.				
	1912.	1913.	1914.	1915.	1916.		1912.	1913.	1914.	1915.	1916.
Italian ...	174	223	335	251	42	Great Britain ...	352	382	782	275	184
Swedish ...	204	227	375	247	152	Italy ...	160	220	341	229	34
Danish ...	123	163	248	183	174	Germany ...	614	661	1,391	149	72
Russian ...	182	246	452	187	58	America (North)...	108	133	239	134	85
German ...	757	789	1,836	179	106	Sweden ...	73	85	149	111	69
Norwegian ...	86	122	208	140	95	Denmark ...	67	86	131	103	99
Greek ...	89	79	112	90	3	Norway ...	43	71	113	72	46
American (Nth.)	43	47	83	79	65	Greece ...	45	36	55	51	3
Dutch ...	36	65	115	72	42	France ...	36	39	70	49	17
Swiss ...	39	47	84	45	36	Egypt ...	55	49	75	38	...
French ...	59	66	104	44	30	America (South)	19	28	82	36	24
Spanish ...	25	26	34	18	11	Holland ...	20	41	77	34	20
Belgian ...	6	14	16	17	6	Russia ...	36	53	98	32	8
Bulgarian ...	3	7	16	15	...	South Africa ...	33	53	99	29	23
Rumanian ...	4	7	21	10	4	Belgium ...	21	33	65	28	9
Portuguese ...	1	9	6	3	...	New Zealand ...	33	39	75	26	18
American (Sth.)	1	5	3	3	6	Switzerland ...	23	36	56	26	20
Austrian ...	95	131	205	3	5	Spain ...	24	26	26	15	4
Mexican ...	...	1	1	2	1	Austria ...	40	56	71	2	2
Chilian ...	1	1	...	1	...	India ...	9	6	24	7	3
Luxemburger ...	...	...	7*	1	...	New Caledonia ...	7	11	9	5	7
Chinese ...	1*	3	...	1	3	Turkey ...	6	4	4	3	...
Serbian ...	1	4	2	1	2	China ...	10	34	43	3	...
Icelandic ...	...	...	...	...	...	Mauritius ...	7	...	...	...	9
Montenegrin ...	1	1	3	...	...	Argentina ...	...	...	...	...	5
Peruvian ...	...	...	3	...	...	Canada ...	...	...	...	...	3
Turkish ...	10	8	2	...	...	Finland ...	...	...	...	...	...
Japanese ...	...	...	2*	...	...	Other Countries ...	99	100	197	145	76
Brazilian ...	1	...	...	...	...						
Syrian ...	...	...	...	...	1						
Total ...	1,945	2,291	4,272	1,602	842	Total ...	1,945	2,291	4,272	1,602	842

\* By marriage.

The following table furnishes particulars concerning the States in which the recipients of Commonwealth certificates of naturalisation during the years 1906 to 1916 were resident :—

## NATURALISATION CERTIFICATES GRANTED BY COMMONWEALTH, 1906 to 1916.

Year.	N.S.W.	Victoria.	Qld.	S. Aust.	W.A.	Tas.	Nor. Ter.	C'with.
1906 ...	475	301	177	45	150	39	...	1,187
1907 ...	458	214	193	27	184	16	...	1,042
1908 ...	396	243	377	45	152	28	...	1,241
1909 ...	644	507	378	600	221	81	...	2,431
1910 ...	665	329	333	299	187	36	...	1,849
1911 ...	565	491	469	282	248	22	...	2,077
1912 ...	565	295	464	343	243	35	...	1,945
1913 ...	603	484	525	355	342	30	2	2,291
1914 ...	1,327	1,202	625	552	520	43	3	4,272
1915 ...	411	378	345	260	191	16	1	1,602
1916 ...	260	211	152	82	115	20	2	842

3. Census Particulars.—On the Personal Card used at the Census of 3rd April, 1911, an inquiry as to naturalisation was made, all persons who were British subjects by naturalisation being required to indicate the fact by inserting the letter N in the place provided for the purpose on the card. In addition, in checking the cards in the Census Bureau, instructions were given that cases of women naturalised by marriage to British subjects, and of children naturalised by residence with parents who have become British subjects, should be duly taken into account by the insertion of the letter N if originally omitted. The results of the tabulation will be found in the following table :—

**NUMBER OF NATURALISED BRITISH SUBJECTS**  
**RECORDED AT THE AUSTRALIAN CENSUS OF 3RD APRIL, 1911.**  
**STATES.**

Particulars.	N. S. W.	Victoria	Qld.	S. Aust.	W. Aus.	Tas.	Territories.		C'wth.
							North- ern.	Federal	
Males ...	11,333	8,445	11,025	4,141	3,544	784	457	4	39,683
Females ...	2,808	2,182	5,562	1,763	646	293	13	1	13,268
Persons ...	14,141	10,627	16,587	5,904	4,190	1,027	470	5	52,951

## § 12. Graphical Representation of Growth of Population.

1. **General.**—The nature of the fluctuations of the numbers representing (a) total population, or those representing (b) births and deaths from year to year, or (c) the natural increase, *i.e.*, the difference of births and deaths, or (d) the net immigration, all of which taken together make up the element of increase of total population, cannot be readily discerned from mere numerical tables. It has been deemed desirable therefore to furnish a series of graphical representations, shewing in some cases the characteristics of these elements from 1788 to 1917, and in others from 1860 to 1917. The graphs furnish at a glance a clear indication of the changes taking place, and of their significance from year to year. The great importance of such representations is that only by their means can the most recent changes be justly apprehended, either in their relation to the past, or their meaning for the future.

2. **Graphs of Total Population** (page 145).—These graphs furnish interesting evidence of the comparatively slow rate of growth of the several States and of the Commonwealth as a whole, during the period from the foundation of settlement in 1788 until 1832. From that year onwards to 1851, a moderately increased rate of progress was experienced. In 1851 gold was discovered in Australia, and the effect of this discovery on the population of the Commonwealth is shewn by the steepness of the curves for New South Wales and Victoria, and also for the Commonwealth, from this point onwards for a series of years. The sudden breaks in the continuity of the curves for New South Wales indicate the creation of new colonies, and their separation from the mother colony. Thus, Tasmania came into existence in 1825, Victoria in 1851, and Queensland in 1859. Owing to the extensive gold discoveries in Victoria, its population increased so rapidly that in 1854 its total passed that of New South Wales, and remained in excess until 1892, when the mother State again assumed the lead, which it has since maintained. The rate of increase in New South Wales is large, but the State is still only sparsely populated. A feature of the New South Wales curve is its comparative regularity as compared with that of Victoria, the population of which State increased with great rapidity from 1851 to 1860, less rapidly from 1861 to 1878, with a further period of increased rapidity from 1878 to 1891, and a period of very slow and fluctuating growth from the latter year to 1914. In 1915 and 1916 the population decreased, but in 1917 an increase was again recorded. Victoria, however, has a population density more than double that of Tasmania, and nearly three times that of New South Wales.

In the case of Queensland, the curve indicates a rate of growth which, though varying somewhat, has on the whole been satisfactory, and at times very rapid. Periods of particularly rapid increase occurred from 1862 to 1865, from 1873 to 1877, and from 1881 to 1889. With the exception of the year 1916 the population of this state has always increased each year up to 1917. The population of Queensland passed that of Tasmania in 1867, and that of South Australia in 1885. The population density of Queensland is one-sixteenth of that of Victoria.

The curve for South Australia indicates that with fluctuations more or less marked, the population increased at a moderate rate from the date of the foundation of the colony in 1834 until 1884, and that from that point onwards, a diminished rate of increase was experienced, with slight decreases in 1886, 1888, 1900, 1902, 1915 and 1916. The population of South Australia passed that of Tasmania in 1852. Its density is nearly one and one-fifth of that of Queensland, about one-fifth of that of New South Wales, and about one-fourteenth of that of Victoria.

The curve for Western Australia indicates that the population increased regularly but very slowly until 1886, when the discovery of gold in the Kimberley division caused an influx of population. The effects of the further rich discoveries of gold in the Murchison and Coolgardie districts in 1891 and 1892, are clearly shewn in the rapid increase of population in those and subsequent years to 1897. Two years of retarded progress then occurred, followed by a satisfactorily rapid rate of increase from 1899 to 1906, a slight decline in 1907 and a further advance in 1908 and subsequent years to 1914. Decreases occurred in 1915 and 1916, with an increase in 1917. The population of Western Australia became greater than that of Tasmania in 1899. Its density is little more than one-fourth of that of South Australia, one-third of that of Queensland, one-nineteenth of that of New South Wales, and about one-fiftieth of that of Victoria.

The Tasmanian population curve indicates a comparatively slow rate of growth throughout. Its most noticeable feature is a retardation in increase in 1852 and subsequent years, brought about by the discovery of gold on the mainland. The population density of Tasmania is about 30 per cent. greater than that of New South Wales, and a little less than half of that of Victoria.

**3. Graphs for Commonwealth of Male and Female Population** (page 146).—These curves shew the relative growth of male and female population of the Commonwealth, and it will be seen that the former are far more liable to marked fluctuations than the latter. The curves representing an increase of population on the basis of the United States rate for 1790 to 1860, indicate that on the whole the female rate of increase in the Commonwealth has been a fairly satisfactory one, and that from 1860 to 1893 the same might be said of the male population. From 1893 onwards, however, the male population of the Commonwealth has fallen considerably below this rate.

Although the rate of increase of the female population from 1860 onwards is on the whole very satisfactory, it should be noted that the total number at the beginning of this period was relatively very small, and that from 1894 onwards there is a falling-off in the rate of increase, similar to that experienced in the case of males.

**4. Graphs for each State of Male and Female Population** (page 147).—These graphs, shewing the relative progress in male and female population for each of the States, disclose the fact that in all cases the female population is much less liable to marked fluctuations than the male, and further, that in cases where rapid increases have taken place in the latter, a similar, but much more gradual, increase is in evidence in the former, commencing usually, however, somewhat later than in the case of the males. A comparison of the graphs of each of the States with that of the Commonwealth shews that the fluctuations in the latter case are smaller than in the former. This is largely due to internal migrations of the male element of the population, brought about by various causes, amongst which mining developments figure prominently.

**5. Graphs for Natural Increase of Population, Commonwealth and States** (page 150).—The graphs indicate that, with the exception of certain marked variations, the natural increase of the population of the Commonwealth, i.e., the excess of births over deaths, advanced with fair rapidity from 1860 to 1892, in which year it attained its maximum, and then fell rapidly till 1898. A subsequent rise to 1900 was followed by a continuous fall for the three years succeeding, viz., to 1903. The recovery shews a fairly rapid rise to 1909, during which year the natural increase was 16.35 per 1000 of mean population. In succeeding years a correspondingly high rate was maintained with minor



fluctuations until 1914, when a record of 17.54 was obtained. In 1915 and 1916 the rate declined to 16.59 and 15.74 respectively, but improved to 16.71 in 1917. In 1912 a rate of 17.42 was obtained; this was, however, an over-statement of the true natural increase for the year, owing to the fact that the introduction of "Maternity Allowances" in 1912 resulted in expediting the registration of births. The years in which the natural increase of the Commonwealth was at its highest were 1865, 1871, 1881, 1892, 1900, 1909, and 1914, and the years of extraordinarily low rates of natural increase were 1866, 1875, 1882, 1898, and 1903. The low rate of 1898 was due in large measure to a phenomenally high death rate experienced in practically all the States in that year, when an epidemic of measles was prevalent throughout the Commonwealth. The low rate of 1903 was brought about by the low birth rates and the high death rates which accompanied the drought of 1902-3, while the advance in the rate of natural increase since 1903 has been collateral with the marked improvement in material conditions experienced throughout the Commonwealth during that period.

**6. Graphs shewing Total Increase of Population** (pages 148 and 149).—The graphs disclose the fact that the most notable years of large total increases of population of the Commonwealth as a whole were 1864, 1877, 1883, 1888, 1909, 1910, 1911 and 1912. The total increase for 1910 was higher than for any year since 1883, while that for 1912 was the highest on record. The years in which low total increases were noticeable were 1861, 1867, 1872, 1878, 1889, 1893, 1898, and 1903. The decreases in the years 1915 and 1916 are a direct effect of the war.

The graph for New South Wales indicates a high total increase of population between 1876 and 1894, advancing to a maximum in 1883, and then declining to 1901. From the latter year onwards to 1907 an advance in the total increase was in evidence, followed by a decline in 1908, and a recovery in 1909, which was maintained in subsequent years to 1912. In 1913, 1914, and 1915 the figures fell continuously, followed in 1916 by a decrease.

Some features of the graph shewing the Victorian total increase are the height attained in 1864, 1870, 1888, 1901, and 1912, the smallness of the increase for the years 1861 and 1875, and the decreases for 1896, 1902, and 1903. The increase fell off in 1913 and 1914 and a decrease was experienced in 1915 and 1916.

For Queensland it will be seen that the years of high total increases were 1863, 1875, 1883, 1895, 1901, 1909, 1910, 1911, and 1913, while the years in which these were at very low level were 1869, 1878, 1891, and 1903. In 1914 and 1915 there was a progressive decline, followed by a decrease in 1916.

In South Australia the total increases were exceptionally high in 1865, 1876, 1877, 1878, 1883, 1892, 1908, 1910, 1911, and 1912, and correspondingly low in 1870, 1885, 1896, and 1903, while actual decreases took place in 1886, 1888, and 1902. In 1913 there was a slight decline in the total increase, followed by a larger one in 1914, while in 1915 and 1916 there was a decrease.

In Western Australia the total increase graph indicates no very marked advance until about 1884, from which it rises somewhat rapidly to 1886, and then declines to 1888. This is followed by an exceedingly rapid rise to 1896, and a subsequent fall to 1899, succeeded by a further rise to 1902, and a fall thereafter to 1907, followed by a rise to 1911, a further fall in 1912, and a rise in 1913. Decreases took place in 1888, 1907, 1915 and 1916.

In the case of the Tasmanian graph, indications of a very varied total increase are in evidence, the principal high points being those for the years 1887, 1891, 1897, 1902, 1907, 1912, and 1913, while actual decreases were experienced in 1874, 1875, 1892, 1906, 1911, 1914, 1915 and 1916.

7. **Graphs shewing Masculinity of Population, Commonwealth and States** (page 151).—These graphs furnish information concerning the variations which have taken place in the relative numbers of males and females in the populations of the Commonwealth and the several States during the years 1796 to 1917, and incidentally serve to indicate special features of growth in the respective populations. In general it will be noted that in recent years there has been a marked tendency towards a masculinity of zero, that is, to a condition in which the numbers of males and females in the population were equal, but that with the exception of Victoria and South Australia the masculinity had never fallen below zero prior to the outbreak of war. In 1916 and 1917, however, it fell below zero in all the States except Queensland and Western Australia, and also in the Commonwealth as a whole. The early experience of the Commonwealth exhibits a fairly rapid decline in masculinity to 1812, followed by an even more rapid rise to 1828 and a subsequent fall with more gentle slope to 1850. From 1850 onwards the decline in masculinity has been fairly continuous though subject to fluctuations. It should be noted that the marked variations of the earlier as compared with the later years have been due to a considerable extent to the fact that, owing to the smallness of the population, any considerable influx of male immigrants had a marked effect in increasing the masculinity of the population, while an influx of female immigrants tended to considerably reduce it. Two points of special interest in the graphs of the separate States are the maxima attained in 1852 in Victoria and 1896 in Western Australia, as the result of extensive male immigration consequent on the gold discoveries in the respective States.

## SECTION V.

## VITAL STATISTICS.

NOTE.—The rates quoted throughout this Section for the years 1907 to 1917 have been calculated in accordance with the corrected populations as determined by the results of the Census of 1911.

## § 1. Births.

1. Male and Female Births, 1907 to 1917.—The total number of male and female births registered in the Commonwealth during the years 1907 to 1917 is shewn in the two tables hereunder:—

## TOTAL MALE BIRTHS, COMMONWEALTH, 1907 to 1917.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	North. Terr.	Federal Territory.	C'wealth.
1907 ...	21,604	15,986	7,451	4,675	3,962	2,797	14	...	56,489
1908 ...	21,605	16,071	7,677	4,924	3,993	2,818	25	...	57,113
1909 ...	22,464	16,096	7,954	5,224	3,884	2,849	11	...	58,482
1910 ...	23,368	16,412	8,260	5,395	3,855	2,888	28	...	60,206
1911 ...	24,383	16,934	8,703	5,615	4,124	2,716	16	(a) 17	62,508
1912 ...	26,524	18,226	9,576	6,168	4,469	3,016	23	20	68,022
1913 ...	26,624	18,434	10,041	6,505	4,710	3,071	27	22	69,434
1914 ...	27,452	18,545	10,120	6,668	4,663	3,094	31	31	70,604
1915 ...	27,085	17,820	10,444	6,076	4,578	2,991	33	22	69,049
1916 ...	26,615	17,623	9,673	6,200	4,439	2,873	44	38	67,505
1917 ...	27,002	17,220	10,058	5,762	4,058	2,720	42	21	66,883

(a) Part of New South Wales prior to 1911.

## TOTAL FEMALE BIRTHS, COMMONWEALTH, 1907 to 1917.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	North. Terr.	Federal Territory.	C'wealth.
1907 ...	20,597	15,379	7,089	4,536	3,750	2,494	13	...	53,858
1908 ...	20,853	15,026	7,153	4,832	3,762	2,797	9	...	54,432
1909 ...	21,318	15,448	7,598	4,840	3,718	2,651	16	...	55,589
1910 ...	22,076	15,025	7,909	5,145	3,730	2,698	12	...	56,595
1911 ...	23,154	16,092	8,281	5,442	3,967	2,721	15	(a) 13	59,685
1912 ...	25,337	17,570	9,162	5,911	4,220	2,837	10	19	65,066
1913 ...	25,562	17,536	9,690	6,122	4,508	2,815	25	22	66,280
1914 ...	26,189	17,677	9,762	6,236	4,541	2,923	27	24	67,379
1915 ...	25,846	17,189	9,719	5,722	4,439	2,854	28	25	65,822
1916 ...	25,465	16,612	9,239	5,657	4,124	2,769	30	25	63,921
1917 ...	25,446	15,813	9,729	5,564	3,824	2,656	27	23	63,082

(a) Part of New South Wales prior to 1911.

2. Total Births, 1907 to 1917.—The total number of births for the Commonwealth was higher in 1914 than in any of the preceding years, but the figures for the last three years shew a falling off for the Commonwealth as compared with those for 1913 and

1914, the only States in which births were slightly more numerous in 1917 than in 1913 being New South Wales and Queensland, while every State receded from the 1914 numbers.

### TOTAL BIRTHS, COMMONWEALTH, 1907 to 1917.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	North. Terr.	Fed'l Terr.	C'wealth.
1907 ...	42,201	31,365	14,540	9,211	7,712	5,291	27	...	110,347
1908 ...	42,458	31,097	14,830	9,756	7,755	5,615	34	...	111,545
1909 ...	43,782	31,544	15,552	10,064	7,602	5,500	27	...	114,071
1910 ...	45,444	31,437	16,169	10,540	7,585	5,586	40	...	116,801
1911 ...	47,537	33,026	16,984	11,057	8,091	5,437	31	(a) 30	122,193
1912 ...	51,861	35,796	18,738	12,079	8,689	5,853	33	39	133,088
1913 ...	52,186	35,970	19,731	12,627	9,218	5,886	52	44	135,714
1914 ...	53,641	36,222	19,882	12,904	9,204	6,017	58	55	137,983
1915 ...	52,931	35,009	20,163	11,798	9,017	5,845	61	47	134,871
1916 ...	52,080	34,235	18,912	11,857	8,563	5,642	74	63	131,426
1917 ...	52,448	33,033	19,787	11,326	7,882	5,376	69	44	129,965

(a) Part of New South Wales prior to 1911.

3. *Birth Rates, 1907 to 1917.*—(i.) *Crude Birth Rate.* The law relating to Maternity Allowances, which came into force on 10th October, 1912, had the effect of materially diminishing the period between the dates of birth and the date of registration, so that probably 6000 births were registered during the last three months of the year which, under ordinary circumstances, would not have been registered before the beginning of 1913. The increase shewn by the 1912 birth rate over the rate for 1911 is, therefore, to some extent fictitious, and the true birth rate for the whole Commonwealth in 1912 was more probably about 27.42 per thousand than 28.65 as shewn in the subjoined table. If due allowance be made for this fact, it may be stated that the birth rate for the Commonwealth was not only higher in 1913 than in any of the preceding nine years, but that the increase which began with the year 1909, was maintained to the end of 1913, while the years 1914, 1915, 1916 and 1917 shew decreases in the rate, that for 1917 having practically receded to the 1908 level. The very high masculinity of the population accounts for the low birth rate experienced in the Northern Territory:—

### CRUDE BIRTH RATE (a), COMMONWEALTH, 1907 to 1917.

Year.	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	North. Terr.	Federal Territory.	Cwlth.
1907 ...	27.34	25.59	26.79	25.05	30.18	28.63	7.06	...	26.76
1908 ...	26.99	25.07	26.79	25.81	30.08	29.95	9.30	...	26.59
1909 ...	27.40	25.01	27.29	25.91	28.87	28.91	7.63	...	26.69
1910 ...	27.83	24.51	27.33	26.50	27.99	29.25	11.75	...	26.73
1911 ...	28.60	25.01	27.65	26.89	28.21	28.57	9.34	(c) 16.85	27.21
1912 ...	29.86	26.39	29.67	28.65	28.83	30.53	9.82	19.15	28.65
1913 ...	28.86	25.82	30.24	29.12	29.36	30.03	14.21	17.97	28.25
1914 ...	28.96	25.45	29.46	29.33	28.45	30.33	15.46	20.79	28.05
1915 ...	28.33	24.55	29.35	26.84	27.97	29.32	13.85	19.05	27.25
1916 ...	27.89	24.29	27.91	27.39	27.21	28.47	15.26	24.11	26.78
1917 ...	28.06	23.50	29.09	26.21	25.54	27.03	13.92	17.65	26.51
Density (b) (No. per square mile) ...	6.07	16.06	1.03	1.15	0.31	7.75	0.009	2.31	1.66

(a) Number of births per 1,000 of the mean annual population. (b) On 31st December, 1917.  
(c) Part of New South Wales prior to 1911

The population density of each State and of the Commonwealth has been given for the purpose of considering the influence, if any, of concentration of population on birth rate, in connection with the disparities of the rate in different parts of Australia.

(ii.) *Objections to Crude Birth Rate.* The figures just given represent the "crude birth rate," i.e., the number of births per thousand of mean annual population. The number of births per thousand of the female population of child-bearing ages, i.e., from 15 to 45, furnishes a more significant rate. This calculation has been made for the four last Census periods, and covers in each case the Census year together with the year immediately preceding and the year immediately following. The following results have been obtained for the four Census periods:—Total births per 1000 women (married and unmarried) of ages 15 to 45:—Years 1880-82, 169.69; years 1890-92, 158.81; years 1900-02, 117.26; years 1910-12, 117.22. Nuptial births per 1000 married women of ages 15 to 45:—Years 1880-82, 320.96; years 1890-92, 332.03; years 1900-02, 235.84; years 1910-12, 236.06.

4. *Birth Rates of Various Countries.*—A comparison with other countries shews that the Australian States occupy a very low position, which is, however, fortunately counterbalanced by a still lower position in regard to their death rates, as will be seen from the table hereinafter in the section dealing with "Deaths."

#### CRUDE BIRTH RATE (a) OF VARIOUS COUNTRIES.

Country.	Year.	Rate.	Country.	Year.	Rate.
Russia, European ...	1909	44.0	Commonwealth ...	1917	26.5.
Rumania ...	1914	42.5	South Australia ...	1917	26.2
Bulgaria ...	1911	40.2	Netherlands... ..	1915	26.2
Serbia ...	1912	38.0	New Zealand ...	1917	25.6.
Ceylon ...	1915	37.0	Western Australia ...	1917	25.5
Chile ...	1914	37.0	Denmark ...	1915	24.2.
Hungary ...	1912	36.3	Ontario (Canada) ...	1915	24.2
Jamaica ...	1915	34.6	Norway ...	1915	23.8
Japan ...	1913	33.3	Victoria ...	1917	23.5.
Austria ...	1912	31.3	Scotland ...	1916	22.8
Italy ...	1914	31.1	Belgium ...	1912	22.6.
Spain ...	1914	29.8	Sweden ...	1915	21.6.
Queensland ...	1917	29.1	United Kingdom ...	1916	21.1
Prussia ...	1913	28.2	Ireland ...	1916	21.1
New South Wales ...	1917	28.1	England and Wales ...	1916	20.9.
German Empire ...	1913	27.5	Switzerland... ..	1915	19.5.
Tasmania ...	1917	27.0	France ...	1913	19.0
Finland ...	1914	26.9			

(a) Number of births per 1000 of the mean population.

The wide discrepancies among the crude birth rates of the various countries are, to some extent, due to differences in sex and age constitution and of conjugal condition. If the birth rates be calculated per 1000 women of child-bearing ages, the comparison shews widely different results. The report for 1908 of the Registrar-General for England and Wales contains a table shewing the nuptial births per 1000 married women of ages 15 to 45, in a number of countries, and the information here given in regard to the period 1900-1902 is taken therefrom.

## NUPTIAL BIRTHS PER 1000 MARRIED WOMEN, AGED 15-45 YEARS, 1900-1902.

Country.	Rate.	Country.	Rate.
Netherlands ...	314.6	Switzerland ...	265.9
Norway ...	302.8	Denmark ...	259.1
Prussia ...	290.4	Spain ...	258.7
Ireland ...	289.4	Belgium ...	250.7
German Empire ...	284.2	New Zealand ...	243.2
Austria ...	283.7	Commonwealth ...	235.8
Scotland ...	271.8	England and Wales ...	235.5
Italy ...	269.4	France ...	157.5
Sweden ...	269.0		

5. **Masculinity at Birth.**—The masculinity of births, i.e., the number of males per 100 females, registered during the last eleven years in the several States of the Commonwealth has, apart from the Northern Territory and the Federal Territory, the figures for which are useless for comparative purposes on account of the smallness of the returns on which they are based, varied from 99.82 in Tasmania in 1911 to 112.15 in Tasmania in 1907. The following table, which gives the values for the States and Commonwealth for 1907 to 1917, shews the remarkable fact that for the Commonwealth there was a steady increase of masculinity from 1907 to 1910, with a sharp decrease in 1911 and 1912, and slight increases in every year from 1913 to 1917.

## MASCULINITY (a) OF BIRTHS REGISTERED, COMMONWEALTH, 1907 to 1917.

Year.	N.S.W.	Vict.	Q'land.	S. Aust.	W. Aust.	Tas.	Northern Territory.	Federal Territory.	C'wealth.
1907 ...	104.89	103.95	105.11	103.06	105.65	112.15	107.69	...	104.89
1908 ...	103.61	106.95	107.33	101.90	106.14	100.75	277.78	...	104.93
1909 ...	105.38	104.19	104.69	107.93	104.46	107.47	68.75	...	105.20
1910 ...	105.85	109.23	104.44	104.86	103.35	107.04	233.33	...	106.38
1911 ...	105.31	105.23	105.10	103.18	103.96	99.82	106.67	(b) 130.77	104.73
1912 ...	104.68	103.73	104.52	104.35	105.90	106.31	230.00	105.26	104.54
1913 ...	104.15	105.12	103.62	106.26	104.48	109.09	108.00	100.00	104.76
1914 ...	104.82	104.91	103.67	106.93	102.69	105.85	114.81	129.17	104.79
1915 ...	104.79	103.67	107.46	106.18	103.13	104.80	117.86	88.00	104.90
1916 ...	104.52	106.09	104.70	109.60	107.64	103.76	146.67	152.00	105.61
1917 ...	106.11	103.90	103.38	103.56	106.12	102.41	155.55	91.30	106.02

(a) Number of males to each 100 females.

(b) Part of New South Wales prior to 1911.

There is ordinarily a very small difference between the masculinity of nuptial and ex-nuptial births. Thus, according to Bodio, whose figures are quoted in the following table, for the period about 1887-1891, the masculinity ranged from 108.3 to 103.6, and from 107.9 to 101.6 for total and ex-nuptial births respectively.

## MASCULINITY OF BIRTHS IN VARIOUS COUNTRIES.

Country.	Masculinity of Births. (a)		Country.	Masculinity of Births. (a)	
	All Live Births.	Ex-nuptial Live Births.		All Live Births.	Ex-nuptial Live Births.
Spain ...	108.3	107.9	German Empire ...	105.2	104.7
Rumania ...	107.7	103.4	Finland ...	105.0	105.2
Portugal ...	107.5	106.4	Hungary ...	105.0	102.9
Austria ...	105.8	105.5	Sweden ...	105.0	104.3
Italy ...	105.8	104.4	Denmark ...	104.8	105.0
Norway ...	105.8	105.9	Serbia ...	104.7	103.5
Ireland ...	105.5	104.8	France ...	104.6	102.9
Netherlands ...	105.5	104.7	Belgium ...	104.5	102.2
Scotland ...	105.5	105.9	Switzerland ...	104.5	101.6
Russia, European ...	105.4	104.5	England ...	103.6	104.4

(a) Number of males to each 100 females.

The masculinity of ex-nuptial births in the Commonwealth was as follows:—

MASCULINITY (a) OF EX-NUPTIAL BIRTHS REGISTERED, COMMONWEALTH,  
1907 TO 1917.

Year.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	North-Territ'y.	Federal Territ'y.	C'with.
1907 ...	104.91	105.59	100.90	113.56	115.94	100.00	...	...	105.11
1908 ...	108.60	105.38	96.83	96.82	89.33	108.51	150.00	...	104.00
1909 ...	105.46	102.16	103.90	105.37	129.14	129.01	66.67	...	106.25
1910 ...	104.96	103.59	100.39	101.33	89.70	106.94	200.00	...	103.05
1911 ...	101.73	106.61	97.94	106.19	108.05	105.67	28.57	(b) ...	103.10
1912 ...	109.83	95.98	97.30	120.85	124.40	82.69	200.00	...	104.05
1913 ...	101.52	105.79	106.39	110.36	110.36	145.97	133.33	100.00	106.21
1914 ...	109.30	108.16	104.63	110.97	107.49	101.70	133.33	...	107.75
1915 ...	98.42	103.21	99.26	101.71	100.52	100.64	70.00	...	100.00
1916 ...	103.39	109.88	114.67	112.04	100.63	90.00	87.50	200.00	106.66
1917 ...	104.53	107.50	107.10	100.00	85.80	111.94	166.67	...	104.78

(a) Number of males to each 100 females. (b) Part of New South Wales prior to 1911.

It is curious to note that while, so far as the total births are concerned, there has always been an excess of male births over female births (excepting Tasmania in 1911), this has not been the case in regard to ex-nuptial births, since in Tasmania in 1912 the masculinity was only 82.69, while on the other hand it rose as high as 145.97 in the following year. Little weight, however, can be attached to those results on account of the small totals on which they are based, and for the same reason the figures for the Northern Territory are not taken into consideration.

6. **Ex-nuptiality of Births.**—The total ex-nuptial births rose rapidly from 1905 to 1908 and remained almost stationary till 1909, when the number again decreased, so that the year 1910 shewed the lowest number recorded since 1906. During the three years 1911-13 the numbers shew a considerable increase, with further decreases in 1914, 1915 and 1916 and a slight increase in 1917. (See the table on the following page).

It is, of course, possible that the number of ex-nuptial births is somewhat understated, owing to diffidence in proclaiming the fact of ex-nuptiality, and it is not unlikely that the majority of unregistered births are ex-nuptial.

### TOTAL EX-NUPTIAL BIRTHS REGISTERED IN THE COMMONWEALTH, 1907 to 1917.

Year.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	North. Terr.	Fed'l Terr.	C'wealth.
1907 ...	2,920	1,764	1,117	378	298	306	...	...	6,783
1908 ...	2,887	1,793	1,118	433	337	294	5	...	6,867
1909 ...	2,821	1,870	1,097	421	346	300	5	...	6,860
1910 ...	2,853	1,759	1,034	455	313	298	9	...	6,721
1911 ...	2,921	1,969	1,057	466	362	290	9	(a)...	7,074
1912 ...	2,904	2,046	1,170	572	377	285	3	1	7,358
1913 ...	2,793	2,169	1,228	528	406	305	7	2	7,438
1914 ...	2,836	2,015	1,148	500	388	355	21	...	7,263
1915 ...	2,633	2,012	1,082	472	383	311	17	...	6,910
1916 ...	2,461	1,763	966	458	321	285	15	8	6,272
1917 ...	2,485	1,826	992	448	327	284	16	1	6,379

(a) Part of New South Wales prior to 1911.

(i.) *Rate of Ex-nuptiality, 1907 to 1917.* The rate of ex-nuptiality, i.e., the percentage of ex-nuptial to total births, has been gradually decreasing during the last ten years, as the subjoined table shews:—

### PERCENTAGE OF EX-NUPTIAL ON TOTAL BIRTHS, COMMONWEALTH, 1907 to 1917.

Year.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	North. Terr.	Fed'l Terr.	C'wealth.
	%	%	%	%	%	%	%	%	%
1907 ...	6.92	5.62	7.68	4.10	3.86	5.78	...	...	6.15
1908 ...	6.80	5.77	7.54	4.44	4.35	5.24	14.71	...	6.16
1909 ...	6.44	5.94	7.05	4.18	3.95	5.45	18.52	...	6.01
1910 ...	6.28	5.60	6.39	4.32	4.13	5.33	22.50	...	5.75
1911 ...	6.14	5.96	6.22	4.21	4.47	5.33	29.03	(a)...	5.79
1912 ...	5.60	5.72	6.24	4.74	4.34	4.87	9.09	2.56	5.53
1913 ...	5.35	6.03	6.22	4.18	4.40	5.18	13.46	4.55	5.48
1914 ...	5.29	5.56	5.77	3.87	4.22	5.90	36.21	...	5.26
1915 ...	4.97	5.74	5.36	4.00	4.24	5.32	27.87	...	5.12
1916 ...	4.73	5.15	5.11	3.80	3.75	5.05	20.27	4.76	4.77
1917 ...	4.74	5.53	5.01	3.96	4.15	5.28	23.19	2.27	4.91

(a) Part of New South Wales prior to 1911.

A comparison of greater significance is obtained by calculating the number of ex-nuptial births per thousand of the single and widowed female population between the ages of 15 and 45. The calculation has been made for the last four Census periods, and covers in each case the Census year, together with the year immediately preceding and the year immediately following. The number of ex-nuptial births per 1000 unmarried women of ages 15 to 45 has been found to be as follows:—Years 1880-82, 14.49; years 1890-92, 15.93; years 1900-02, 13.30; years 1910-12, 12.53. Corresponding figures for the countries the nuptial birth rates of which were shewn in a preceding paragraph are here given for the sake of comparison:—



**EX-NUPTIAL BIRTHS PER 1000 UNMARRIED WOMEN AGED 15-45 YEARS,  
1900 TO 1902.**

Country.	Rate.	Country.	Rate.
Austria ... ..	40.1	Spain ... ..	15.5
German Empire ... ..	27.4	Scotland ... ..	13.4
Sweden ... ..	24.3	Commonwealth ... ..	13.3
Denmark ... ..	24.2	Switzerland ... ..	9.8
Prussia ... ..	23.7	New Zealand ... ..	8.9
Italy ... ..	19.4	England and Wales ... ..	8.5
France ... ..	19.1	Netherlands ... ..	6.8
Belgium ... ..	17.8	Ireland ... ..	3.8
Norway ... ..	17.2		

(ii.) *Comparison of Rates.* Since the rate of ex-nuptiality might appear to increase by the mere decrease in the general birth rate, the following table has been prepared :—

**CRUDE EX-NUPTIAL, NUPTIAL, AND TOTAL BIRTH RATES (a), COMMONWEALTH,  
1907 TO 1917.**

Rates.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.
Ex-nuptial	1.64	1.64	1.60	1.54	1.57	1.58	1.55	1.48	1.40	1.28	1.30
Nuptial ...	25.12	24.95	25.09	25.19	25.64	27.07	26.70	26.57	25.85	25.50	25.21
Total ...	26.76	26.59	26.69	26.73	27.21	28.65	28.25	28.05	27.25	26.78	26.51

(a) Number of births per 1000 of mean population.

**7. Multiple Births.**—Among the total number of 129,965 births registered in the Commonwealth in 1917 there were 126,957 single births, 2954 twins, 50 triplets, and 4 quadruplets. The number of cases of twins was 1477, the number of cases of triplets 17, and the number of cases of quadruplets one. The total number of mothers was, therefore, 128,452, the proportion of mothers of twins being one in every 87, and of mothers of triplets one in every 7558 of total mothers. The proportion of multiple births is a fairly constant one. In 1907 they numbered 1043 out of a total of 109,806, or one in 105; in 1908, 1065, or one in 104; in 1909, 1142, or one in 99; in 1910, 1189, or one in 99; in 1911, 1236, or one in 98; in 1912, 1350, or one in 98; in 1913, 1369, or one in 99; in 1914, 1401, or one in 97; in 1915, 1417, or one in 94; in 1916, 1383, or one in 95; and in 1917, 1477, or one in 86. The number of cases of triplets is so small that a slight alteration in the total will completely change the proportion. Thus, there were 14 cases in 1907, or one in 7872 of total mothers, as compared with one in 18,415 in 1908; one in 8066 in 1909, one in 8893 in 1910, one in 8639 in 1911, one in 8233 in 1912, one in 16,793 in 1913, one in 12,415 in 1914, one in 13,444 in 1915, one in 10,952 in 1916, and one in 7558 in 1917. The case of quadruplets which occurred in 1917 was the first since the tabulation of Vital Statistics was undertaken by the Commonwealth Bureau of Census and Statistics.

**8. Ages of Parents.**—The relative ages of the parents of children registered in 1917 have been tabulated separately for male and female births, twins and triplets being distinguished from single births, and are shown for single ages and for every State in "Bulletin of Population and Vital Statistics, No. 34; Commonwealth Demography, 1917 and previous years." In the present work the exigencies of space allow only the insertion of corresponding tables shewing the relative ages of parents in groups of five years. It will be seen from the tables that the largest number of both single and twin births occurred where the ages of both father and mother were between 25 and 29. The largest number of mothers was found at ages 25 to 29.

## (a) AGES OF PARENTS IN CASES OF SINGLE BIRTHS, COMMONWEALTH, 1917.

Ages of Fathers.		Total Chil- dren.	Ages of Mothers.									Not Stated.
			Under 15.	15 to 19.	20 to 24.	25 to 29.	30 to 34.	35 to 39.	40 to 44.	45 and Upwds.		
Under 20	Males	168	...	108	57	3	...	...	...	...	...	
	Females	160	...	107	49	4	...	...	...	...	...	
	Total	328	...	215	106	7	...	...	...	...	...	
20 to 24	Males	5,534	...	855	3,603	857	94	14	...	...	1	
	Females	5,215	...	855	3,465	777	96	18	1	...	...	
	Total	10,749	3	1,820	7,068	1,634	190	32	1	...	1	
25 to 29	Males	16,301	...	545	6,238	7,836	1,487	178	15	2	...	
	Females	15,264	...	515	5,898	7,336	1,324	172	17	2	...	
	Total	31,565	...	1,060	12,136	15,172	2,811	350	32	4	...	
30 to 34	Males	15,925	...	148	2,311	6,618	5,765	979	99	3	2	
	Females	15,018	...	130	2,273	6,210	5,408	920	73	1	3	
	Total	30,943	...	278	4,584	12,828	11,173	1,899	172	4	5	
35 to 39	Males	12,004	...	45	779	2,845	4,521	3,472	329	11	2	
	Females	11,119	...	50	642	2,549	4,268	3,250	347	13	...	
	Total	23,123	...	95	1,421	5,394	8,789	6,722	676	24	2	
40 to 44	Males	6,755	...	15	210	806	1,895	2,654	1,147	28	...	
	Females	6,391	...	13	194	770	1,788	2,474	1,124	27	1	
	Total	13,146	...	28	404	1,576	3,683	5,128	2,271	55	1	
45 to 49	Males	3,656	...	4	98	291	729	1,463	951	120	...	
	Females	3,526	...	6	57	285	719	1,319	1,017	123	...	
	Total	7,182	...	10	155	576	1,448	2,782	1,968	243	...	
50 to 54	Males	1,297	...	2	17	81	239	388	483	87	1	
	Females	1,270	...	2	23	93	243	413	408	87	1	
	Total	2,567	...	4	40	174	482	801	890	174	2	
55 to 59	Males	380	...	...	5	35	74	119	114	33	...	
	Females	372	...	...	10	27	58	134	119	24	...	
	Total	752	...	...	15	62	132	253	233	57	...	
60 to 64	Males	119	...	...	4	12	28	31	39	5	...	
	Females	116	...	1	2	11	12	40	44	6	...	
	Total	235	...	1	6	23	40	71	83	11	...	
65 and up- wards	Males	36	...	...	...	3	11	10	12	...	...	
	Females	39	...	...	...	5	9	18	4	3	...	
	Total	75	...	...	...	8	20	28	16	3	...	
Not stated	Males	15	...	...	...	1	1	...	...	...	13	
	Females	13	...	...	...	...	...	...	...	...	13	
	Total	28	...	...	...	1	1	...	...	...	26	
Nuptial child- ren.	Males	62,190	...	1,832	13,322	19,388	14,844	9,308	3,188	289	19	
	Females	58,503	3	1,679	12,613	18,067	13,925	8,758	3,154	286	18	
	Total	120,693	3	3,511	25,935	37,455	28,769	18,066	6,342	575	37	
Ex- nuptial child- ren	Males	3,193	16	845	1,190	589	279	182	80	7	5	
	Females	3,071	10	805	1,143	561	300	183	62	3	4	
	Total	6,264	26	1,650	2,333	1,150	579	365	142	10	9	
Total child- ren	Males	65,383	16	2,677	14,512	19,977	15,123	9,490	3,268	296	24	
	Females	61,574	13	2,484	13,756	18,628	14,225	8,941	3,216	289	22	
	Total	126,957	29	5,161	28,268	38,605	29,348	18,431	6,484	585	46	

## (b) AGES OF PARENTS OF TWINS, COMMONWEALTH, 1917.

Ages of Fathers.		Total Chil- dren.	Ages of Mothers.						
			Under 20.	20 to 24.	25 to 29.	30 to 34.	35 to 39.	40 to 44.	45 & up- wards.
Under 20	Males	...	...	...	...	...	...	...	...
	Females	...	6	4	3	...	...	...	...
	Total	...	6	4	3	...	...	...	...
20 to 24	Males	...	85	9	65	11	...	...	...
	Females	...	87	7	57	23	...	...	...
	Total	...	172	16	122	34	...	...	...
25 to 29	Males	...	294	3	94	154	40	3	...
	Females	...	294	3	106	152	32	1	...
	Total	...	588	6	200	306	72	4	...
30 to 34	Males	...	359	...	31	130	170	28	...
	Females	...	363	...	47	136	154	26	...
	Total	...	722	...	78	266	324	54	...
35 to 39	Males	...	315	...	9	58	116	124	8
	Females	...	297	2	11	56	102	116	10
	Total	...	612	2	20	114	218	240	18
40 to 44	Males	...	173	...	3	14	54	79	22
	Females	...	212	...	3	22	52	107	28
	Total	...	384	...	6	36	106	186	50

## (b) AGES OF PARENTS OF TWINS, COMMONWEALTH, 1917—Continued.

Ages of Fathers.			Total Children.	Ages of Mothers.						
				Under 20.	20 to 24.	25 to 29.	30 to 34.	35 to 39.	40 to 44.	45 & upwards.
45 to 49	...	Males ...	101	...	...	1	10	53	35	2
	...	Females ...	105	...	...	1	32	35	33	4
	...	Total ...	206	...	...	2	42	88	68	6
50 to 54	...	Males ...	57	...	...	7	5	25	20	...
	...	Females ...	63	...	...	3	11	31	16	2
	...	Total ...	120	...	...	10	16	56	36	2
55 to 59	...	Males ...	10	...	...	3	1	...	6	...
	...	Females ...	10	...	...	1	1	4	4	...
	...	Total ...	20	...	...	4	2	4	10	...
60 to 64	...	Males ...	1	...	...	...	...	...	1	...
	...	Females ...	3	...	2	...	...	...	1	...
	...	Total ...	4	...	2	...	...	...	2	...
65 and upwards	...	Males ...	4	...	...	...	...	2	1	1
	...	Females ...	4	...	...	...	...	2	1	1
	...	Total ...	8	...	...	...	...	4	2	2
Nuptial children	...	Males ...	1,398	12	202	378	396	314	93	3
	...	Females ...	1,444	16	228	394	384	322	93	7
	...	Total ...	2,842	28	430	772	780	636	186	10
Ex-nuptial children	...	Males ...	71	14	21	17	10	7	2	...
	...	Females ...	41	4	17	7	10	3	...	...
	...	Total ...	112	18	38	24	20	10	2	...
Total children	...	Males ...	1,469	26	223	395	406	391	95	3
	...	Females ...	1,485	20	245	401	394	325	93	7
	...	Total ...	2,954	46	468	796	800	646	188	10

## (c) AGES OF PARENTS OF TRIPLETS, COMMONWEALTH, 1917.

Ages of Fathers.			Total Children.	Ages of Mothers.				
				20 to 24.	25 to 29.	30 to 34.	35 to 39.	40 to 44.
20 to 24	...	Males ...	3	3	...	...	...	...
	...	Females ...	...	...	...	...	...	...
	...	Total ...	3	3	...	...	...	...
25 to 29	...	Males ...	2	...	2	...	...	...
	...	Females ...	1	...	1	...	...	...
	...	Total ...	3	...	3	...	...	...
30 to 34	...	Males ...	8	...	...	8	...	...
	...	Females ...	3	...	*2	1	...	...
	...	Total ...	11	...	2	9	...	...
35 to 39	...	Males ...	3	...	1	2	...	...
	...	Females ...	9	...	5	4	...	...
	...	Total ...	12	...	6	6	...	...
40 to 44	...	Males ...	9	...	2	...	5	2
	...	Females ...	3	...	1	...	1	1
	...	Total ...	12	...	3	...	6	3
45 to 49	...	Males ...	2	...	...	...	2	...
	...	Females ...	1	...	...	...	1	...
	...	Total ...	3	...	...	...	3	...
50 to 54	...	Males ...	1	...	...	...	1	...
	...	Females ...	2	...	...	...	2	...
	...	Total ...	3	...	...	...	3	...
Nuptial children	...	Males ...	28	3	5	10	8	2
	...	Females ...	19	...	9	5	4	1
	...	Total ...	47	3	14	15	12	3
Ex-nuptial children	...	Males ...	...	...	...	...	...	...
	...	Females ...	3	...	3	...	...	...
	...	Total ...	3	...	3	...	...	...
Total children	...	Males ...	28	3	5	10	8	2
	...	Females ...	22	...	12	5	4	1
	...	Total ...	50	3	17	15	12	3

\* Excluding one female stillborn.

In the case of quadruplets above-mentioned, the age of the father was 38 years, and that of the mother 34. There were three male children and one female.

No conclusions can, of course, be drawn from one year's figures as to variations in the masculinity of the births at different ages of the parents, but so far as the figures go they indicate a few particulars which may be mentioned, viz.: In cases where the father is older than the mother the masculinity has a tendency to be above the average, while in cases where both parents belong to the same age group, or where the father is younger than the mother, the masculinity is rather below the average. It is also below the average in cases where the father, or both father and mother, are under 25; and it is above the average where the mother alone is under 25.

9. **Birthplaces of Parents.**—The relative birthplaces of the parents of children whose births were registered during the year 1917 will be found tabulated in the Bulletin before-mentioned. A summary of the results of the tabulation is here given:—

**BIRTHPLACES OF PARENTS OF CHILDREN, COMMONWEALTH, 1917.**

Birthplaces.	Fathers.			Mothers of Nuptial Children.			Mothers of Ex-nuptial Children.		
	Single Births.	Twins.	Trip-lets.	Single Births.	Twins.	Trip-lets.	Single Births.	Twins.	Trip-lets.
<b>AUSTRALASIA—</b>									
Commonwealth of Australia—									
N. South Wales	38,620	458	5	41,720	484	5	2,238	22	1
Victoria ...	31,047	374	...	31,136	349	* 1	1,692	14	...
Queensland ...	12,096	134	2	14,684	158	2	838	7	...
South Australia	11,640	130	3	11,633	146	4	456	5	...
Western Australia	1,505	14	...	1,970	25	...	171	1	...
Tasmania ...	5,247	46	2	5,500	51	2	358	2	...
North. Territory.	10	...	...	23	...	...	18	...	...
New Zealand ...	1,212	7	...	995	12	...	33	...	...
<b>EUROPE—</b>									
England... ..	11,535	139	3	8,118	119	3	270	3	...
Wales ... ..	340	3	1	230	1	...	3	...	...
Scotland... ..	2,643	49	...	2,060	36	...	68	...	...
Ireland ... ..	1,621	29	* 1	1,048	17	...	40	1	...
Isle of Man ...	13	...	...	10	...	...	...	...	...
Other European British Possessions...	41	1	...	22	...	...	...	...	...
Austria-Hungary ...	83	...	...	55	...	...	...	...	...
Belgium... ..	15	...	...	7	1	...	1	...	...
Denmark ... ..	159	2	...	50	1	...	1	...	...
France ... ..	49	...	...	27	...	...	4	...	...
Germany ... ..	668	8	...	275	4	...	10	...	...
Greece ... ..	89	1	...	46	1	...	2	...	...
Italy ... ..	332	2	...	210	2	...	3	...	...
Netherlands ...	74	...	...	31	...	...	...	...	...
Norway ... ..	91	...	...	19	1	...	1	...	...
Portugal... ..	1	...	...	1	...	...	...	...	...
Russia ... ..	277	3	...	178	2	...	3	1	...
Spain ... ..	39	...	...	20	2	...	3	...	...
Sweden ... ..	155	3	...	21	...	...	...	...	...
Switzerland ...	38	1	...	28	...	...	1	...	...
Other European Countries ...	34	...	...	13	1	...	1	...	...
<b>ASIA—</b>									
British India ...	117	3	...	64	1	...	4	...	...
Ceylon ... ..	12	...	...	7	...	...	...	...	...
Hong Kong ... ..	...	...	...	1	...	...	...	...	...
Straits Settlements	5	...	...	1	...	...	...	...	...
Other Asiatic British Possessions ...	4	...	...	2	...	...	...	...	...
Afghanistan ...	5	...	...	...	...	...	...	...	...

\* One Case of Quadruplets.

## BIRTHPLACES OF PARENTS OF CHILDREN—Continued.

Birthplace.	Fathers.			Mothers of Nuptial Children.			Mothers of Ex-nuptial Children.		
	Single Births.	Twins.	Trip-lets.	Single Births.	Twins.	Trip-lets.	Single Births.	Twins.	Trip-lets.
ASIA—continued.									
Arabia ...	1	...	...	...	...	...	...	...	...
China ...	125	1	...	31	...	...	1	...	...
Japan ...	16	...	...	9	...	...	...	...	...
Java ...	4	...	...	1	...	...	...	...	...
Philippine Islands	6	...	...	...	...	...	...	...	...
Syria ...	85	2	...	71	2	...	...	...	...
Other Asiatic Coun-tries ...	41	...	...	1	...	...	...	...	...
AFRICA—									
Mauritius ...	14	1	...	4	...	...	...	...	...
S. Africa, Union of	86	1	...	78	1	...	8	...	...
Other African Brit-ish Possessions ...	2	...	...	2	...	...	...	...	...
Egypt ...	11	...	...	7	1	...	...	...	...
Other African Coun-tries ...	6	...	...	1	...	...	...	...	...
AMERICA—									
Canada ...	87	1	...	24	...	...	1	...	...
Jamaica ...	1	...	...	...	...	...	...	...	...
Newfoundland ...	2	...	...	1	...	...	...	...	...
Other American British Pos. ...	6	...	...	4	...	...	...	...	...
Argentine Republic	7	...	...	5	...	...	...	...	...
Brazil ...	1	...	...	3	...	...	...	...	...
Chile ...	5	...	...	2	...	...	...	...	...
Mexico ...	2	...	...	1	...	...	1	...	...
Peru ...	1	...	...	...	...	...	...	...	...
United States of America ...	200	4	...	107	2	...	5	...	...
Other American Countries ...	25	...	...	10	...	...	2	...	...
POLYNESIA—									
Fiji ...	25	1	...	29	...	...	...	...	...
Friendly Islands ...	2	...	...	2	...	...	...	...	...
Papua ...	1	...	...	1	...	...	...	...	...
Other Polynesian British Pos. ...	3	...	...	2	...	...	...	...	...
New Caledonia ...	10	...	...	11	...	...	5	...	...
New Hebrides ...	6	...	...	...	...	...	...	...	...
Samoa ...	2	...	...	3	...	...	...	...	...
Other Polynesian Islands ...	5	...	...	...	...	...	...	...	...
South Sea Islands ° (so described) ...	13	...	...	...	...	...	1	...	...
At Sea ...	89	1	...	60	1	...	1	...	...
Unspecified ...	13	2	...	18	...	...	20	...	...
Total ...	120,693	1,421	*17	120,693	1,421	*17	6,264	56	1

\* Including one case of Quadruplets.

10. Occupations of Fathers.—A summary of the occupations of the fathers of all nuptial children, whose births were registered in 1917, will be found in the following table. The figures include all the States and Territories of the Commonwealth :—

## OCCUPATIONS OF FATHERS OF ALL NUPTIAL CHILDREN, COMMONWEALTH, 1917.

Occupations.	Number of Fathers.	Occupations.	Number of Fathers.
<b>CLASS I.—PROFESSIONAL.</b>			
General Government ...	651	Wool and Tallow ...	83
Local Government ...	109	Hay, Corn, etc. ...	183
Defence ...	2,808	Other Vegetable Matter, n.e.i. ...	108
Law and Order ...	1,184	Wood and Coal ...	125
Religion ...	393	Stone, Clay, and Glass ...	21
Charities ...	7	Gold, Silver, and Precious Stones ...	4
Health ...	952	Ironmongery ...	205
Literature ...	153	Merchants, Importers ...	460
Science ...	82	Shopkeepers and Assistants ...	1,190
Civil Engineering, Architecture, and Surveying ...	360	Dealers and Hawkers ...	372
Education ...	776	Agents and Brokers ...	504
Fine Arts ...	134	Clerks, Bookkeepers, etc. ...	3,814
Music ...	140	Commercial Travellers, Salesmen ...	1,545
Amusements ...	478	Others engaged in Commercial Pursuits ...	1,279
Total Professional ...	8,227	Speculators on Chance Events ...	61
		Storage ...	5
		Total Commercial ...	16,844
<b>CLASS II.—DOMESTIC.</b>		<b>CLASS IV.—TRANSPORT AND COMMUNICATION.</b>	
Hotelkeepers and Assistants ...	678	Railway Traffic ...	5,122
Others engaged in providing board and lodging ...	335	Tramway Traffic ...	1,330
House Servants ...	84	Road Traffic ...	5,315
Coachmen and Grooms ...	214	Sea and River Traffic ...	1,739
Hairdressers ...	577	Postal Service ...	637
Laundrymen ...	62	Telegraph and Telephone Service ...	664
Others engaged in domestic occupations ...	282	Messengers, etc. ...	22
Total Domestic ...	2,232	Total Transport & Communication ...	14,829
<b>CLASS III.—COMMERCIAL.</b>		<b>CLASS V.—INDUSTRIAL.</b>	
Banking and Finance ...	502	Books and Publications ...	805
Insurance and Valuation ...	466	Musical Instruments ...	56
Landed and House Property ...	146	Prints, Pictures and Art Materials ...	109
Property Rights not elsewhere clsd. ...	—	Ornaments and Small Wares ...	134
Books, Publications, Advertising ...	173	Equipment for Sports and Games ...	3
Musical Instruments ...	20	Medals, Type, and Dies ...	38
Prints, Pictures and Art Materials ...	2	Watches, Clocks, and Scientific Instruments ...	133
Ornaments and Small Wares ...	2	Surgical Instruments ...	7
Watches, Clocks, Jewellery ...	9	Arms and Ammunition ...	153
Surgical Instruments ...	1	Engines, Machines, Tools, and Implements ...	1,540
Arms and Ammunition ...	2	Carriages and Vehicles ...	1,088
Machinery ...	44	Harness, Saddlery & Leatherware ...	397
Carriages and Vehicles ...	56	Ships, Boats, etc. ...	161
Harness, Saddlery & Leatherware ...	5	Furniture ...	626
Ships and Boats ...	9	Building Materials ...	835
Building Materials ...	25	Chemicals and By-Products ...	61
Furniture ...	71	Textile Fabrics ...	125
Chemicals and By-products ...	10	Dress ...	1,827
Paper and Stationery ...	37	Fibrous Materials ...	48
Textile Fabrics ...	566	Animal Food ...	424
Dress ...	178	Vegetable Food ...	1,476
Fibrous Materials ...	9	Groceries, Drinks, Narcotics, and Stimulants ...	369
Animal Food ...	2,296	Animal Matter, not elsewhere clsd. ...	359
Vegetable Food ...	695	Workers in wood, not elsewhere clsd. ...	154
Groceries, Drinks, Narcotics, and Stimulants ...	1,349	Vegetable Produce for Fodder ...	17
Living Animals ...	180		
Leather, Raw Materials ...	33		

## OCCUPATIONS OF FATHERS OF ALL NUPTIAL CHILDREN—Continued.

Occupations.	Number of Fathers.	Occupations.	Number of Fathers.
Paper ... ..	21	CLASS VI.—AGRICULTURAL, PASTORAL, MINING, ETC.	
Stone, Clay, Glass, etc. ...	453	Agricultural ... ..	20,451
Jewellery and Precious Stones ...	228	Pastoral ... ..	3,714
Metals, other than Gold & Silver ...	2,830	Dairy Farming ... ..	1,162
Gas, Electric Lighting, etc. ...	922	Bees, Fisheries, and Wild Animals ...	403
Building—		Forestry ... ..	838
Builders ... ..	489	Water Conservation and Supply ...	159
Stonemasons ... ..	211	Mines and Quarries ... ..	4,953
Bricklayers ... ..	546	Total Primary Producers ...	31,680
Carpenters ... ..	2,754	CLASS VII.—INDEFINITE.	
Slaters ... ..	39	Independent Means, having no specific occupation ... ..	69
Plasterers ... ..	297	Occupation not stated ... ..	30
Painters ... ..	1,173	Total Indefinite ... ..	99
Plumbers ... ..	831	CLASS VIII.—DEPENDENTS.	
Signwriters ... ..	65	Dependent Relatives ... ..	1
Others ... ..	29	Dependent on State ... ..	5
Roads, Railways, Earthworks ...	364	Total Dependents ... ..	6
Disposal of the Dead ... ..	51	Total all Occupations ...	122,131
Disposal of Refuse ... ..	56		
Other Industrial Workers—			
Manufacturers, etc. ... ..	442		
Engineers, Firemen ... ..	3,428		
Contractors ... ..	1,283		
Labourers, undefined ... ..	20,440		
Others ... ..	317		
Total Industrial ... ..	48,214		

11. **Mothers' Age, Duration of Marriage, and Issue.**—A tabulation has been made shewing, in age-groups, the duration of marriage and issue of mothers. The total number of nuptial confinements in 1917 was 122,131, viz., 120,693 single births, 1421 cases of twins, 16 cases of triplets, and 1 case of quadruplets. From this number 185 mothers must be deducted, in whose case the necessary particulars either as to date of marriage or as to previous issue were not stated. The tables refer, therefore, to a total of 121,946 mothers. They exclude children by former marriages and still-born children, but include ex-nuptial children, previous issue by the same father. The tables cannot be given *in extenso*, but the following are their most salient features. The complete tabulations are shown in "Commonwealth Bulletin of Population and Vital Statistics, No. 35; Commonwealth Demography, 1917, and previous years."

**DURATION OF MARRIAGE AND ISSUE OF MOTHERS OF ALL AGES,  
COMMONWEALTH, 1917.**

Duration of Marriage.	Total Mothers.	Total Issue.	Average Number of Children.	Duration of Marriage.	Total Mothers.	Total Issue.	Average Number of Children.
Years.				Years.			
0-1 ...	16,196	16,392	1.01	18-19 ...	1,406	10,656	7.58
1-2 ...	9,731	10,696	1.10	19-20 ...	1,144	9,040	7.90
2-3 ...	9,698	17,217	1.78	20-21 ...	881	7,128	8.09
3-4 ...	11,451	23,923	2.09	21-22 ...	730	6,354	8.70
4-5 ...	9,913	24,616	2.48	22-23 ...	529	4,717	8.92
5-6 ...	9,118	26,005	2.85	23-24 ...	382	3,581	9.37
6-7 ...	7,930	25,447	3.21	24-25 ...	268	2,594	9.68
7-8 ...	6,927	25,086	3.62	25-26 ...	202	2,030	10.05
8-9 ...	5,709	22,687	3.97	26-27 ...	133	1,398	10.51
9-10 ...	5,364	23,221	4.33	27-28 ...	64	654	10.22
10-11 ...	4,757	22,300	4.69	28-29 ...	49	545	11.12
11-12 ...	4,043	20,395	5.04	29-30 ...	16	173	10.81
12-13 ...	3,449	18,770	5.44	30-31 ...	8	100	12.40
13-14 ...	2,980	17,085	5.73	31-32 ...	3	35	11.66
14-15 ...	2,508	15,173	6.05	32-33 ...	1	11	11.00
15-16 ...	2,394	15,367	6.42	33-34 ...	1	13	13.00
16-17 ...	2,049	13,976	6.50				
17-18 ...	1,912	13,764	7.20	Total	121,946	401,149	3.29

## AGES AND ISSUE OF MOTHERS, COMMONWEALTH, 1917.

Ages of Mothers.	Total Mothers.	Total Issue.	Average Number of Children.	Ages of Mothers.	Total Mothers.	Total Issue.	Average Number of Children.
Under 20 years	3,500	4,285	1.22	40-44 years ...	6,433	42,236	6.57
20-24 years ...	26,097	47,347	1.81	45 yrs. and over	579	4,704	8.12
25-29 " ...	37,808	99,624	2.63				
30-34 " ...	29,149	109,181	3.75				
35-39 " ...	18,380	93,772	5.10	All ages ...	121,946	401,149	3.29

## PREVIOUS ISSUE OF MOTHERS OF VARIOUS AGES, COMMONWEALTH, 1917.

Previous Issue.	Mothers' Ages.							Total.
	Under 20 Years.	20-24 Years.	25-29 Years.	30-34 Years.	35-39 Years.	40-44 Years.	45 Years and Over.	
0	2,805	12,375	9,816	3,900	1,434	319	17	30,666
1	623	8,312	10,560	5,382	1,864	372	18	27,131
2	68	3,896	8,084	5,614	2,370	533	31	20,596
3	4	1,180	5,022	4,811	2,625	591	27	14,260
4	...	285	2,727	3,820	2,503	691	49	10,075
5	...	44	1,079	2,692	2,233	717	45	6,810
6	...	5	372	1,555	1,860	749	51	4,592
7	...	...	110	804	1,484	654	66	3,118
8	...	...	25	361	1,000	619	59	2,064
9	...	...	9	136	553	491	65	1,254
10	...	...	3	47	254	335	53	692
11	...	...	1	18	119	166	47	351
12	...	...	...	8	45	100	24	177
13	...	...	...	1	18	51	14	84
14	...	...	...	...	11	25	4	40
15	...	...	...	...	6	8	5	19
16	...	...	...	...	...	9	3	12
17	...	...	...	...	...	2	1	3
18	...	...	...	...	1	1	...	2
Total Mothers	3,500	26,097	37,808	29,149	18,380	6,433	579	121,946

The tables shew a fairly regular increase in the number of children up to the period where the marriage has lasted twenty years, and it appears that the average interval between successive confinements up to that period was rather more than two years and eight months. The average number of children of all marriages was 3.29, the corresponding figures for 1916 having been 3.18; for 1915, 3.26; for 1914, 3.22; for 1913, 3.21; for 1912, 3.29; for 1911, 3.34; and for 1910, 3.41.

A similar table has been prepared shewing the previous issue of mothers of twins, triplets and quadruplets, from which it appears that 258 mothers had twins at their first confinement; 245 at their second; 258 at their third; 199 at their fourth; 148 at their fifth; 110 at their sixth; 66 at their seventh; 54 at their eighth; 38 at their ninth; 30 at their tenth; 14 at their eleventh; 7 at their twelfth; 7 at their thirteenth; 1 at her fourteenth.

Of the sixteen cases of triplets, 3 occurred at the first confinement; 3 at the second; 2 at the third; 2 at the fourth; 1 at the fifth; 2 at the seventh; 1 at the eighth; and 2 at the ninth. The case of quadruplets occurred at the sixth confinement.



12. **Interval between Marriage and First Birth.**—The following table shews the interval between marriage and first birth. Twins and triplets are included, the eldest born only being enumerated :—

**INTERVAL BETWEEN MARRIAGE AND FIRST BIRTH, COMMONWEALTH, 1917.**

Interval.	Number of First Children.	Interval.	Number of First Children.	Interval.	Number of First Children.	Interval.	Number of First Children.
Under 1 mth.	322	12 mths.	1,547	2 years	2,638	14 years	17
1 mth.	375	13 "	1,145	3 "	1,168	15 "	14
2 mths	556	14 "	997	4 "	677	16 "	5
3 "	749	15 "	902	5 "	372	17 "	5
4 "	918	16 "	811	6 "	232	18 "	3
5 "	1,210	17 "	725	7 "	141	19 "	2
6 "	1,565	18 "	639	8 "	99	20 "	4
7 "	1,460	19 "	520	9 "	79	21 "	1
8 "	1,409	20 "	481	10 "	62	24 "	1
9 "	3,142	21 "	467	11 "	36		
10 "	2,527	22 "	380	12 "	21	Total	30,666
11 "	1,921	23 "	298	13 "	23		

Of these 30,666 children, 15,751 were males and 14,915 were females; the masculinity of first births was therefore 105.61 as compared with 106.02 for total births.

The previous issue of mothers of ex-nuptial children is not recorded, but for the purposes of the following table all ex-nuptial births have been assumed to be first births. The table shews the ages of mothers of ex-nuptial births, of nuptial births occurring less than nine months after marriage, and of nuptial births occurring nine months or more after marriage. A comparison of the combined total of the first two columns with the total of nuptial children born nine months or more after marriage, reveals the fact that for all ages the ratio of the two was as 4 is to 5. At all ages up to and including 21, however, there was a great preponderance of ex-nuptial births and of births following on ante-nuptial conception. It must, of course, be understood that a certain number of premature births are necessarily included among the births which occurred less than nine months after marriage, but there is no means of arriving at the proportion of those births.

**AGES OF MOTHERS AND INTERVAL BETWEEN MARRIAGE AND FIRST BIRTH, etc.**

**COMMONWEALTH, 1917.**

Age of Mother at Birth of Child.	Ex-nuptial Births.	Nuptial Births less than nine months after Marriage.	Total of two preceding columns.	Nuptial Births nine months after Marriage and later.	Total Nuptial First Births.	Nuptial First Births and Ex-nuptial Births.
Years.						
13 ...	3	...	3	...	...	3
14 ...	24	1	25	...	1	25
15 ...	64	19	83	2	21	85
16 ...	182	104	286	19	123	305
17 ...	349	302	651	103	405	754
18 ...	458	619	1,077	236	855	1,313
19 ...	605	830	1,435	570	1,400	2,005
20 ...	591	869	1,460	867	1,736	2,327
21 ...	517	1,114	1,631	1,247	2,361	2,878
22 ...	471	915	1,386	1,809	2,724	3,195
23 ...	438	836	1,274	2,060	2,896	3,334
24 ...	335	632	967	2,026	2,658	2,993
25 ...	292	483	775	1,986	2,469	2,761
26 ...	270	408	678	1,855	2,263	2,533
27 ...	240	326	566	1,698	2,024	2,264
28 ...	199	232	431	1,464	1,696	1,895

AGES OF MOTHERS AND INTERVAL BETWEEN MARRIAGE AND FIRST  
BIRTH—Continued.

Age of Mother at Birth of Child.	Ex-nuptial Births.	Nuptial Births less than nine months after Marriage.	Total of two preceding columns.	Nuptial Births nine months after Marriage and later.	Total Nuptial First Births.	Nuptial First Births and Ex-nuptial Births.
Years.						
29 ...	162	190	352	1,174	1,364	1,526
30 ...	154	155	309	993	1,148	1,302
31 ...	118	100	218	804	904	1,022
32 ...	132	103	235	665	768	900
33 ...	93	65	158	522	587	680
34 ...	92	54	146	439	493	585
35 ...	87	48	135	367	415	502
36 ...	81	54	135	285	339	420
37 ...	79	26	105	287	313	392
38 ...	60	26	86	172	198	258
39 ...	63	17	80	152	169	232
40 ...	41	11	52	114	125	166
41 ...	33	9	42	59	68	101
42 ...	35	8	43	61	69	104
43 ...	23	3	26	27	30	53
44 ...	11	1	12	26	27	38
45 ...	7	2	9	6	8	15
46 ...	2	2	4	5	7	9
47 ...	...	...	...	1	1	1
48 ...	1	...	1	1	1	2
49 ...	...	...	...	...	...	...
53 ...	...	...	...	...	...	...
Not stated	9	...	9	...	...	9
Total ...	6,321	8,564	14,885	22,102	30,666	36,987

These results have sometimes been wrongly interpreted. In order to make their true significance clearer, it may be pointed out that during the seven years 1908 to 1914 inclusive there were, in an average female population between the ages 12 to 54 inclusive of about 1,377,108, an annual average of 114,832 nuptial and 6935 ex-nuptial confinements. Of the former, about 31,431 were first births, of which 10,952 occurred within 9 months of marriage (and 19,105 within 12 months), leaving 90,336 which were either not first confinements, or were ex-nuptial confinements. The female population between 12 and 54 inclusive was characterised as follows :—

“Never married” 690,845

“Married” 639,570

“Widowed” ... 44,764

“Divorced” 1,929

Thus the female population between the age limits mentioned, not living in the state of marriage, were 737,538 or 53.56 per cent., the married being 46.44 per cent. In the course of the period mentioned, the proportion of married women giving birth during the interval of 0 to 9 months from marriage was 0.34843 of the total nuptial first confinements, or 0.09537 of the total nuptial confinements. During the same period 269,452 marriages were consummated, the brides aged 12 to 54 inclusive being 267,852 in number. Thus the relative numbers can be set out as follow, the basis being 1,000,000 females of the ages of 12 to 54 inclusive.

## CHARACTERISTICS OF FERTILITY IN AUSTRALIA, 1908-1914.

1,000,000 Females ages 12 to 54 inclusive.					Confinements, average for 1 Year.						Marriages, ages 12-54 inclusive.	
Married.	Never Married.	Widowed	Divorced	Total.	First Confinements.			All Confinements.			Marriages.	First Confinements.
					After 9 Months.	Within 9 Months.	Total.	Nuptial.	Ex-Nuptial.	Total.		
464,430	501,663	32,506	1,401	1,000,000	14,871	7,953	22,824	83,387	5,035	88,422	194,503	159,769
464,430	535,570			1,000,000	(6,516)	(3,484)	(10,000)	(94,306)	(5,694)	(100,000)	(100,000)	(82,142)
100,000	1,000,000							17,955	9,401			

If the total ex-nuptial cases in the 7 years (48,546) be added to the total nuptial cases born within 9 months of marriage (76,662), the grand total is 125,208, which is equivalent for 7 years to 90,921 for the 1,000,000 females of ages 12 to 54 inclusive. The ratio of the sum of the ex-nuptial children and those born within 9 months of marriage in one year to the total unmarried (i.e., never married, widowed, and divorced), is consequently 0.02425, or about one-fortieth, while the ratio of the births within 9 months of marriage to the total unmarried females is 0.01485, or about one-seventieth. The matter may be put another way. In a female population of 1,000,000 of ages 12 to 54, there are on the average per diem 62.48 first births; the ex-nuptial births are 13.79 per diem; and the nuptial births, occurring within 9 months of marriage, are 21.77 per diem, the total births being 242.06 per diem, of which 228.27 are nuptial.

13. **Interval between Birth and Registration of Birth.**—Information was obtained during 1917 as to the period elapsing between birth and registration. It has already been mentioned in par. 3 *ante* that one of the effects of the law relating to maternity allowances has been to accelerate the registration of births, as the certificate of registration must be produced when a claim under the Act is lodged. In 1912, during the last quarter of which year the Act was in force, about 6 per cent. of all births were registered within seven days; in 1913 this percentage had risen to 34; in 1914 to 40; and in 1917 to 43.

## INTERVAL BETWEEN BIRTH AND REGISTRATION, COMMONWEALTH, 1917.

Interval.	Nuptial Births.	Ex-Nuptial Births.	Total Births.	Interval.	Nuptial Births.	Ex-Nuptial Births.	Total Births.
Under 1 day ...	1,497	67	1,564	16 days ...	2,806	139	2,945
1 day ...	5,820	553	6,373	17 " ...	2,515	128	2,643
2 days ...	7,603	620	8,223	18 " ...	2,235	113	2,348
3 " ...	8,264	494	8,758	19 " ...	2,158	83	2,241
4 " ...	8,125	432	8,557	20 " ...	1,873	67	1,940
5 " ...	7,589	375	7,964	21 " ...	1,710	78	1,788
6 " ...	7,122	331	7,453	22 " ...	1,590	52	1,642
7 " ...	6,548	296	6,844	23 " ...	1,447	59	1,506
8 " ...	5,622	216	5,838	24 " ...	1,377	50	1,427
9 " ...	5,001	170	5,171	25 " ...	1,198	54	1,252
10 " ...	4,685	209	4,894	26 " ...	1,181	45	1,226
11 " ...	4,601	254	4,855	27 " ...	1,133	42	1,175
12 " ...	4,420	249	4,669	28 " ...	1,060	44	1,104
13 " ...	4,272	235	4,507	29 " ...	901	45	946
14 " ...	3,709	192	3,901	30 " ...	858	32	890
15 " ...	3,152	156	3,308	31 " ...	828	31	859

INTERVAL BETWEEN BIRTH AND REGISTRATION, COMMONWEALTH,  
1917—Continued.

Interval.	Nuptial Births.	Ex-Nuptial Births.	Total Births.	Interval.	Nuptial Births.	Ex-Nuptial Births.	Total Births.
32 days ...	776	26	802	55 days ...	165	9	174
33 " ...	704	37	741	56 " ...	157	8	165
34 " ...	599	24	623	57 " ...	150	8	158
35 " ...	618	24	642	58 " ...	153	11	164
36 " ...	582	30	612	59 " ...	167	11	178
37 " ...	552	11	563	60 " ...	99	8	107
38 " ...	540	16	556	61 to 69 days	278	17	295
39 " ...	544	14	558	70 " 79 "	113	5	118
40 " ...	523	12	535	80 " 89 "	67	5	72
41 " ...	480	18	498	90 " 99 "	30	1	31
42 " ...	399	13	412	100 " 109 "	17	2	19
43 " ...	331	10	341	110 " 119 "	10	3	13
44 " ...	316	16	332	120 " 129 "	8	6	14
45 " ...	275	11	286	130 " 139 "	7	1	8
46 " ...	277	9	286	140 " 149 "	9	2	11
47 " ...	268	14	282	150 " 159 "	2	2	4
48 " ...	247	11	258	160 " 169 "	11	1	12
49 " ...	226	14	240	170 " 179 "	5	3	8
50 " ...	218	11	229	180 " 365 "	30	3	33
51 " ...	201	10	211	1 to 2 years ...	2	1	3
52 " ...	181	7	188	2 years and over	4	3	7
53 " ...	164	6	170				
54 " ...	181	14	195	Total Births	123,586	6,379	129,965

The weighted average interval between the dates of birth and registration has been found to be as follows :—

INTERVAL BETWEEN BIRTH AND REGISTRATION, COMMONWEALTH, 1911 to 1917.

Year.	For Nuptial Children.	For Ex-nuptial Children.
1911 ... ..	37.4 days	26.7 days
1912 ... ..	*	*
1913 ... ..	15.6 "	15.2 "
1914 ... ..	13.4 "	14.3 "
1915 ... ..	12.3 "	12.4 "
1916 ... ..	12.6 "	14.9 "
1917 ... ..	13.0 "	12.1 "

\* Introduction of maternity allowance.

Similar information for years prior to 1911 is not available, but it may be assumed that the averages did not vary much from year to year. The figures for 1912 have been omitted; they would shew an average similar to that for 1911 for the first three quarters of the year, and one similar to that for 1913 for the last quarter.

## § 2. Marriages.

1. **Marriages, 1907 to 1917.**—The number of marriages registered in the Commonwealth in 1915 was 45,224, the highest number ever recorded. There was a steady increase in the annual number of marriages in each State from 1905 to 1915, and the crude marriage-rate increased similarly in all the States until 1907, with the exception of Western Australia. In 1908 all the States, with the exception of New South Wales and Tasmania, had a lower marriage rate than in 1907, but the rate recovered in 1909 and the three following years, and was considerably higher in 1912 than in 1907 in all the States. In 1913, although the actual number of marriages was greater in Queensland, South Australia, Western Australia, and Tasmania than it had been in 1912, the marriage rate shewed a decrease in every State with the exception of Tasmania. In 1914 the number of marriages and the marriage rate increased in all the States with the exception of South Australia and Tasmania, and in 1915 there were further increases both in the actual number of marriages and in the marriage rate in all States, with the exception of South Australia and Western Australia. The rate for 1915 was the highest ever experienced in the Commonwealth. A considerable decrease however took place in 1916, and a still further fall in 1917, the actual number of marriages in the latter year being about the same as in 1909. The number of marriages in each State since 1907 is shewn below:—

**TOTAL MARRIAGES, COMMONWEALTH, 1907 to 1917.**

Year.	N.S.W.	Victoria.	Qld.	S. Aust.	W. Aust.	Tas.	North Terr.	Federal Terr.	C'wealth.
1907 ...	12,187	9,575	4,105	3,070	2,114	1,410	9	...	32,470
1908 ...	12,641	9,335	4,009	3,112	2,012	1,432	10	...	32,551
1909 ...	13,025	9,431	4,543	3,275	1,997	1,494	10	...	33,775
1910 ...	14,307	10,239	4,768	3,661	2,107	1,493	17	...	36,592
1911 ...	15,278	11,088	5,167	4,036	2,421	1,477	10	(a) 5	39,482
1912 ...	16,666	11,738	5,627	4,056	2,524	1,506	24	6	42,147
1913 ...	16,307	11,324	5,655	4,094	2,572	1,620	16	6	41,594
1914 ...	17,357	11,829	5,894	4,010	2,660	1,543	17	1	43,311
1915 ...	18,095	12,832	6,135	3,965	2,581	1,600	12	4	45,224
1916 ...	16,316	11,342	5,208	3,602	2,365	1,433	19	4	40,289
1917 ...	13,246	9,505	4,868	3,252	1,621	1,138	34	2	33,666

(a) Part of New South Wales prior to 1911.

2. **Marriage Rates, 1907 to 1917.**—The number of marriages registered per thousand of mean population is shewn in the following table for the same period:—

**CRUDE MARRIAGE RATE (a), COMMONWEALTH, 1907 to 1917.**

Year.	N.S.W.	Victoria.	Qld.	S. Aust.	W. Aust.	Tas.	North Terr.	Federal Territory.	C'wealth.
1907 ...	7.89	7.81	7.56	8.35	8.27	7.63	2.35	...	7.87
1908 ...	8.03	7.53	7.24	8.23	7.80	7.64	2.74	...	7.76
1909 ...	8.15	7.48	7.97	8.43	7.59	7.85	2.83	...	7.90
1910 ...	8.76	7.98	8.06	9.21	7.77	7.82	5.00	...	8.37
1911 ...	9.19	8.40	8.41	9.81	8.44	7.76	3.01	(b) 2.81	8.79
1912 ...	9.60	8.65	8.91	9.62	8.37	7.86	7.14	2.95	9.07
1913 ...	9.02	8.13	8.67	9.44	8.19	8.27	4.37	2.45	8.66
1914 ...	9.37	8.31	8.73	9.11	8.22	7.78	4.53	0.38	8.80
1915 ...	9.68	9.00	8.93	9.01	8.01	8.03	2.73	1.62	9.14
1916 ...	8.74	8.05	7.69	8.32	7.51	7.23	3.92	1.53	8.21
1917 ...	7.09	6.76	7.16	7.52	5.25	5.72	6.86	0.80	6.87

(a) Number of marriages (not persons married) per 1000 of mean annual population. (b) Part of New South Wales prior to 1911.

As in some international tabulations the marriage rates are calculated per 1000 of the unmarried population of 15 years and over, the corresponding rates have been worked out for the Commonwealth for the four last Census periods. The figures comprise in each case the Census year with the year immediately preceding and the year immediately following, and are as follows:—Years 1880-82, 48.98; years 1890-92, 45.74; years 1900-02, 42.14; years 1910-12, 50.10. These rates refer, of course, to persons married and not to marriages, as do the rates in the preceding table.

3. **Marriage Rates in Various Countries.**—A comparison of the Australian marriage rate with that of European countries shews that until 1915 it was once or twice surpassed by the rate for Ontario, and equalled by the rate of some of the countries of the East of Europe, and that it was higher than the rate of the countries of Central and Western Europe, and especially than the rate of countries of the North of Europe. Since 1915 it has fallen considerably, as might be expected, but figures for European countries not being available for the last few years, a comparison cannot at present be made.

#### CRUDE MARRIAGE RATES.—VARIOUS COUNTRIES.

Country.	Year.	Crude Marriage Rate.	Country.	Year.	Crude Marriage Rate.
Serbia ...	1911	10.3	New South Wales ...	1917	7.1
Bulgaria ...	1911	9.4	Denmark ...	1915	6.9
Hungary ...	1912	8.6	Commonwealth ...	1917	6.9
Ontario (Canada) ...	1915	8.5	Victoria ...	1917	6.8
Rumania ...	1914	8.5	Scotland ...	1916	6.6
Japan ...	1913	8.1	Netherlands ...	1915	6.6
Belgium ...	1912	8.0	Norway ...	1915	6.5
Prussia ...	1912	8.0	Spain ...	1914	6.5
Russia (European) ...	1909	7.9	Sweden ...	1915	5.8
German Empire ...	1913	7.7	Finland ...	1914	5.7
England and Wales ...	1916	7.5	Tasmania ...	1917	5.7
France ...	1913	7.5	New Zealand ...	1917	5.7
South Australia ...	1917	7.5	Western Australia ...	1917	5.3
Austria ...	1912	7.4	Ireland ...	1916	5.2
Queensland ...	1917	7.2	Chile ...	1914	5.2
Ceylon ...	1915	7.2	Switzerland ...	1915	5.0
Italy ...	1914	7.1	Jamaica ...	1915	3.0
United Kingdom ...	1916	7.1			

4. **Age at Marriage.**—(a) The age at marriage of bridegrooms and brides will be found in the following table, the previous conjugal condition of the contracting parties being distinguished. It will be seen that no less than 1186 males who were less than twenty-one years of age, were married during 1917. The corresponding number of females was 6388, of whom six were widows. At the other extreme there were thirty-seven men of sixty-five years and upwards, who described themselves as bachelors, and six spinsters of corresponding age.

**AGES AND CONJUGAL CONDITION OF PERSONS MARRIED, 1917.**  
**COMMONWEALTH.**

Age at Marriage.	Bridegrooms.				Brides.			
	Bachelors	Widowers	Divorced.	Total.	Spinsters.	Widows.	Divorced.	Total.
13 years	...	...	...	...	1	...	...	1
14 "	...	...	...	...	6	...	...	6
15 "	...	...	...	...	69	...	...	69
16 "	3	...	...	3	273	...	...	273
17 "	42	...	...	42	734	...	...	734
18 "	152	...	...	152	1,342	2	...	1,344
19 "	355	...	...	355	1,844	2	...	1,846
20 "	634	...	...	634	2,113	2	...	2,115
21 "	1,722	2	1	1,725	3,608	8	1	3,617
22 "	2,010	3	1	2,014	2,993	8	3	3,004
23 "	2,336	3	...	2,339	2,820	24	5	2,849
24 "	2,584	8	...	2,592	2,602	26	5	2,633
25 "	2,661	17	3	2,681	2,263	23	8	2,294
26 "	2,533	13	4	2,550	1,892	44	9	1,945
27 "	2,389	27	6	2,422	1,602	41	12	1,655
28 "	2,194	20	6	2,220	1,309	49	18	1,376
29 "	1,837	48	3	1,888	1,063	66	23	1,152
30 "	1,458	53	8	1,519	877	58	26	963
31 "	1,109	50	14	1,173	594	61	11	666
32 "	1,021	62	11	1,094	550	56	20	626
33 "	914	41	14	969	373	48	11	432
34 "	702	59	10	771	397	78	17	492
35 "	635	76	15	726	331	74	18	423
36 "	611	90	18	719	318	62	17	397
37 "	425	69	17	511	253	63	13	329
38 "	444	78	19	541	223	66	19	308
39 "	313	54	13	380	181	71	14	266
40 "	251	67	14	332	126	83	10	219
41 "	219	55	7	281	97	51	12	160
42 "	203	65	9	277	80	68	9	157
43 "	171	55	10	236	66	58	3	127
44 "	155	73	10	238	66	40	13	119
45 "	159	58	10	227	77	70	8	155
46 "	134	72	9	215	66	54	4	124
47 "	132	63	11	206	42	61	5	108
48 "	113	84	10	207	37	44	6	87
49 "	67	61	4	132	32	33	6	71
50 "	81	57	5	143	28	39	1	68
51 "	48	55	2	105	12	21	1	34
52 "	57	61	5	123	20	35	4	59
53 "	49	49	5	103	17	27	6	50
54 "	34	55	3	92	12	17	...	29
55 "	20	45	3	68	12	18	4	34
56 "	35	44	2	81	8	22	1	31
57 "	27	56	...	83	8	21	2	31
58 "	29	34	1	64	8	15	...	23
59 "	11	38	2	51	2	20	1	23
60 "	13	44	3	60	5	12	1	18
61 "	10	32	...	42	...	16	1	17
62 "	9	21	1	31	6	13	...	19
63 "	4	27	...	31	2	15	...	17
64 "	3	17	...	20	1	8	...	9
65 "	6	19	...	25	1	8	...	9
66 "	4	20	1	25	1	7	...	8
67 "	7	15	...	22	2	6	...	8
68 "	4	17	1	22	...	7	...	7
69 "	3	11	...	14	...	9	...	9
70 "	2	12	...	14	1	3	...	4

**AGES AND CONJUGAL CONDITION OF PERSONS MARRIED, 1917—Continued.  
COMMONWEALTH.**

Age at Marriage.	Bridegrooms.				Brides.			
	Bachelors	Widowers	Divorced.	Total.	Spinsters.	Widows.	Divorced.	Total.
71 years ...	...	6	...	6	...	1	...	1
72 " ...	...	8	...	8	...	3	...	3
73 " ...	1	10	...	11	...	...	...	...
74 " ...	3	8	...	11	...	...	...	...
75 " ...	2	6	...	8	...	...	...	...
76 " ...	...	7	...	7	1	2	...	3
77 " ...	1	5	...	6	...	...	...	...
78 " ...	1	2	...	3	...	...	...	...
79 " ...	...	2	...	2	...	...	...	...
80 " ...	1	1	...	2	...	1	...	1
81 " ...	...	2	...	2	...	...	...	...
82 " ...	...	...	...	...	...	1	...	1
83 " ...	1	1	...	2	...	...	...	...
84 " ...	1	1	...	2	...	...	...	...
85 " ...	...	...	...	...	...	...	...	...
86 " ...	...	1	...	1	...	...	...	...
87 " ...	...	1	...	1	...	...	...	...
88 " ...	...	1	...	1	...	...	...	...
Not stated ...	2	1	...	3	8	...	...	8
Total ...	31,157	2,218	291	33,666	31,475	1,841	350	33,666

(b) The relative ages of bridegrooms and brides are shewn for single years in "Bulletin of Population and Vital Statistics, No. 35"; a condensation into age-groups of five years is here given:—

**RELATIVE AGES OF PERSONS MARRIED, COMMONWEALTH, 1917.**

Ages.	Total Bridegrooms.	Ages of Brides.								
		Under 15.	15 to 19.	20 to 24.	25 to 29.	30 to 34.	35 to 39.	40 to 44.	45 and Upwds.	Not Stated.
Ages of Bridegrooms.										
Under 20 ...	553	1	390	151	9	1	...	...	...	...
20 to 24 ...	9,304	2	2,245	5,698	1,188	192	34	3	1	1
25 to 29 ...	11,761	2	1,162	5,733	3,957	717	154	27	5	1
30 to 34 ...	5,526	...	316	1,763	1,945	1,069	320	78	32	3
35 to 39 ...	2,877	1	107	580	862	666	478	120	63	...
40 to 44 ...	1,364	...	32	177	263	296	309	178	108	...
45 to 49 ...	987	...	10	84	134	189	234	157	178	1
50 to 54 ...	566	1	...	...	...	67	103	123	202	...
55 to 59 ...	347	...	3	4	13	21	56	64	188	...
60 to 64 ...	184	...	...	2	3	7	20	21	131	...
65 and upwards ...	195	...	...	2	4	14	15	11	149	...
Not stated ...	3	...	...	...	...	...	...	...	1	2
Total Brides ...	33,666	7	4,266	14,218	8,422	3,179	1,723	782	1,061	8

5. **Previous Conjugal Condition.**—In a previous table the total number of bachelors and spinsters, widowed and divorced persons, who were married during the year 1917, was shewn. In the following table the relative conjugal condition of the contracting parties is given:—

**RELATIVE CONJUGAL CONDITION OF PERSONS MARRIED, COMMONWEALTH, 1917.**

Conjugal Condition.		Total Bridegrooms.	Brides.		
			Spinsters.	Widows.	Divorced.
Bridegrooms	Bachelors ...	31,157	29,746	1,161	250
	Widowers ...	2,218	1,515	634	69
	Divorced ...	291	214	46	31
Total Brides ...		33,666	31,475	1,841	350



6. **Birthplaces of Persons Married.**—Information as to the birthplaces of persons who were married in 1917 was not obtained in the State of Western Australia; the following figures refer, therefore, only to New South Wales, Victoria, Queensland, South Australia, Tasmania, the Northern Territory and Federal Territory. As might be expected, there were more brides than bridegrooms who were natives of the Commonwealth. In "Bulletin No. 35, Commonwealth Demography," the relative birthplaces of bridegrooms and brides will be found tabulated.

### BIRTHPLACES OF PERSONS MARRIED, 1917.

#### COMMONWEALTH (a).

Birthplaces.	Bridegrooms.	Brides.	Birthplaces.	Bridegrooms.	Brides.
<b>AUSTRALASIA—</b>			<b>ASIA—cont.—</b>		
New South Wales ...	10,105	11,289	Java ...	5	1
Victoria ...	8,777	9,171	Philippine Islands ...	...	1
Queensland ...	3,574	4,168	Syria ...	7	5
South Australia ...	3,026	3,156	Other Asiatic Countries	3	1
Western Australia ...	53	79	<b>AFRICA—</b>		
Tasmania ...	1,217	1,320	Union of South Africa	37	20
Northern Territory ...	7	13	Mauritius ...	4	...
New Zealand ...	284	214	Other African British Possessions	...	...
<b>EUROPE—</b>			Egypt ...	4	1
England ...	2,827	1,601	Other African Countries	...	...
Wales ...	91	49	<b>AMERICA—</b>		
Scotland ...	643	382	Canada ...	45	6
Ireland ...	467	286	Jamaica ...	...	...
Isle of Man ...	5	...	Newfoundland	...	...
Other European British Possessions	24	9	Other American British Possessions	6	3
Austria-Hungary ...	15	6	Argentina Republic ...	1	...
Belgium ...	4	3	Brazil ...	...	1
Denmark ...	65	9	Chile ...	1	...
France ...	22	12	Mexico ...	...	...
Germany ...	119	49	United States	101	28
Greece ...	44	8	Other American Countries	11	2
Italy ...	82	27	<b>POLYNESIA—</b>		
Netherlands ...	25	5	Fiji ...	6	4
Norway ...	30	3	Friendly Islands	...	...
Portugal ...	1	...	Other Polynesian British Possessions	2	...
Russia ...	98	36	New Caledonia	2	6
Spain ...	8	7	New Hebrides	1	1
Sweden ...	52	2	Samoa ...	...	1
Switzerland	25	3	Other Polynesian Islands	1	1
Other European Countries	8	2	South Sea Islands (so described)	7	3
<b>ASIA—</b>			At sea	15	12
British India	40	14	Not stated	7	17
Ceylon ...	7	3	<b>Total</b>		
Straits Settlements	1	...	...	32,045	32,045
Other Asiatic British Possessions	2	1			
Afghanistan	2	...			
China	26	4			
Japan	3	...			

(a) Exclusive of Western Australia.

7. **Occupations and Ages of Bridegrooms.**—A tabulation has been made of the occupations and ages of all males married in the Commonwealth in the years 1907 to 1917. In "Bulletin No. 35" the 1917 tabulation is shown for orders of occupations: here it is repeated for classes only, with a subdivision of the Industrial class and of the class of Primary Producers. The average ages of the persons

falling under those twelve subdivisions were determined, and it appears that, apart from the Indefinite class, which consists chiefly of persons who have retired from business and who are living on their own means, and where a high average age may naturally be expected, the average age ranges from 28.70 in the Manufacturing class to 32.63 years in the Pastoral class. The averages for the two five-year periods 1907-1911 and 1912-1916 have been added for the purposes of comparison. The results obtained are shewn in the following table:—

### OCCUPATIONS AND AGES OF BRIDEGROOMS, COMMONWEALTH, 1917.

Ages at Marriage.	Professional.	Domestic.	Mercantile.	Transport and Communication.	Industrial.			Primary Producers.				Indefinite.
					Manu- facturing.	Building and Construction.	Indefinite Industrial Workers.	Agricultural.	Pastoral.	Mines and Quarries.	Other Primary Producers.	
16 years ...	...	...	...	1	1	...	1	...	...	...	...	...
17 " ...	1	...	6	5	5	3	16	2	2	2	...	...
18 " ...	15	4	21	20	31	8	35	8	3	6	1	...
19 " ...	22	9	47	48	53	15	106	29	4	21	1	...
20 " ...	51	0	85	62	111	32	163	73	11	28	6	1
21 " ...	209	22	245	244	283	70	377	157	32	68	18	...
22 " ...	206	35	298	248	330	101	431	241	38	73	12	1
23 " ...	257	50	368	305	383	118	450	263	53	76	14	2
24 " ...	303	42	459	326	379	121	486	333	68	62	12	1
25 " ...	257	47	458	329	398	117	501	407	70	74	23	...
26 " ...	267	51	465	314	363	132	461	356	61	63	16	1
27 " ...	250	42	423	253	341	108	449	381	75	75	11	4
28 " ...	205	37	374	258	286	107	407	385	73	72	12	4
29 " ...	213	39	328	198	250	86	325	317	66	42	13	1
30 " ...	180	33	256	143	212	69	245	274	47	45	13	2
31 " ...	127	26	171	127	139	50	207	236	49	27	11	3
32 " ...	126	21	189	109	132	41	178	208	53	29	5	3
33 " ...	121	21	164	82	111	44	167	191	38	26	4	...
34 " ...	91	20	139	70	82	34	137	129	38	19	9	3
35 to 39 years	298	77	472	281	305	102	541	541	120	106	24	10
40 " 44 "	166	36	231	120	124	46	272	218	82	52	13	4
45 " 49 "	97	36	151	89	86	54	187	165	57	48	8	7
50 years and upwards	118	49	179	97	127	78	259	208	68	56	11	43
Not stated ...	1	...	...	...	...	1	...	...	...	...	...	1
Total ...	3,581	705	5,529	3,739	4,544	1,537	6,401	5,122	1,108	1,070	239	91
Average age—years (1917)	29.94	32.00	29.98	28.91	28.70	30.05	29.77	30.92	32.63	30.69	30.63	45.96
" " (1912-1916)	29.80	30.31	29.42	28.32	28.20	33.19	28.80	30.76	32.32	29.37	29.67	42.74
" " (1907-1911)	31.12	30.32	29.73	28.65	28.27	29.11	28.83	30.99	32.50	29.14	29.43	41.60

The average age at marriage of brides has slowly risen from 25.56 years in 1907 to 25.78 years in 1913 and 1914, 25.75 years in 1915, 26.07 years in 1916, and 26.22 years in 1917. The figures for the eleven years are:—1907, 25.56 years; 1908, 25.67 years; 1909, 25.74 years; 1910, 25.77 years; 1911, 25.74 years; 1912, 25.74 years; 1913, 25.78 years; 1914, 25.78 years; 1915, 25.75 years; 1916, 26.07 years; and 1917, 26.22 years. For the five years 1907-11 the average age was 25.70 years, compared with an average of 25.82 years for the five years 1912-16, and 26.22 years for 1917. As the average age of all bridegrooms during 1917 was 29.97 years, it follows that brides are on an average about three years and three-quarters younger than bridegrooms.

**8. Fertility of Marriages.**—The quotient obtained by division of the nuptial births registered, say during the five years 1913 to 1917, by the number of marriages registered during the five years 1908 to 1912, i.e., the period antecedent by five years to the period of the births, has been called the "fertility of marriages." This works out at 3.44, or in other words, the number of children to be expected from every marriage in the Commonwealth is under four. This method, while not professing any claim to accuracy, generally furnishes results which agree fairly well with those found by more elaborate and careful investigation, but in this instance, owing chiefly to the fictitious increase in the number of births shewn in 1912, it is rather higher than for a number of years prior to 1912. For the period 1907-11 the result was 3.43; for the year 1912, 3.87; for the year 1913, 3.94; for the year 1914, 3.87; for the year 1915, 3.50; for the year 1916, 3.17; and for the year 1917, 2.93.

**9. Registration of Marriages.**—In all the States of the Commonwealth marriages may be celebrated either by ministers of religion whose names are registered for that purpose with the Registrar-General, or by certain civil officers—in most cases district registrars. The percentage of marriages celebrated by ministers of religion has fluctuated during the last eleven years between 95.83 per cent. in 1917 and 97.55 per cent. in 1909. The figures for the individual States in 1917 were: New South Wales, 96.45 per cent.; Victoria, 96.52 per cent.; Queensland, 96.56 per cent.; South Australia, 96.46 per cent.; Western Australia, 79.66 per cent.; and Tasmania, 98.12 per cent., the percentage for the Commonwealth being 95.83. The registered ministers in 1917 belonged to more than forty different denominations, some of which, however, can hardly be regarded as having any valid existence. A number of these have been omitted from the tabulation, and are bracketed under the heading "Other Christians." The figures for 1917 are shewn in the following table:—

**MARRIAGES IN EACH DENOMINATION, COMMONWEALTH, 1917.**

Denomination.	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	N. Ter.	Fed. Ter.	Com'-wealth
Church of England ...	5,758	2,478	1,314	768	545	436	15	2	11,316
Roman Catholic Church ...	2,824	1,861	1,169	421	300	184	8	...	6,767
Presbyterian Church of Aust. ...	1,680	1,729	708	160	131	98	...	...	4,506
Methodist Church ...	1,625	1,415	777	989	243	164	4	...	5,217
Congregational Church ...	296	832	98	157	55	47	...	...	1,485
Baptist Church ...	193	445	178	208	37	66	...	...	1,127
Church of Christ ...	157	237	26	162	9	13	...	...	604
Lutheran Church ...	31	48	135	216	3	...	...	...	433
Greek Orthodox Church ...	6	4	...	...	2	...	...	...	12
Unitarian Church ...	15	2	...	1	...	...	...	...	18
Salvation Army ...	88	37	24	40	12	9	...	...	210
Seventh-Day Adventists ...	28	10	5	6	3	2	...	...	54
Other Christians ...	43	52	261	11	...	97	...	...	464
Hebrew ...	48	35	9	2	7	1	...	...	102
Registrar's Office ...	454	320	162	111	274	21	7	...	1,349
Unspecified ...	...	...	2	...	...	...	...	...	2
<b>Total ...</b>	<b>13,246</b>	<b>9,505</b>	<b>4,868</b>	<b>3,252</b>	<b>1,621</b>	<b>1,138</b>	<b>34</b>	<b>2</b>	<b>33,666</b>

**10. Mark Signatures.**—The marriage registers afford some clue, even if an imperfect one, to the illiteracy of the adult population, since a small and constantly diminishing percentage of bridegrooms and brides sign the registers with marks.

(i.) *Males and Females, 1907 to 1917.* For a number of years, with the exception of 1908, 1910, 1912, and 1913, mark signatures by males have been slightly more numerous than those by females, the percentages for the Commonwealth during the past eleven years having been as follows:—

**PERCENTAGE OF MARK SIGNATURES AT MARRIAGE, COMMONWEALTH, 1907 to 1917.**

Year. ...	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.
Male...	0.81	0.71	0.65	0.56	0.56	0.43	0.36	0.41	0.27	0.37	0.37
Female	0.70	0.73	0.62	0.59	0.54	0.45	0.38	0.38	0.27	0.32	0.31

(ii.) *Mark Signatures in Commonwealth States, 1907 to 1917.* The following table shews that while the Tasmanian percentage has been the highest, and the Victorian the lowest, in each of the eleven years under review, there has been a marked decrease in every State:—

## PERCENTAGE OF MARK SIGNATURES AT MARRIAGE, COMMONWEALTH, 1907 to 1917.

Year.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	North. Terr.	Fed. Terr.	C'wealth.
1907 ...	0.87	0.36	1.14	0.55	0.64	2.02	...	...	0.76
1908 ...	0.79	0.33	1.20	0.56	0.82	1.57	...	...	0.72
1909 ...	0.60	0.22	1.16	0.55	0.68	2.07	30.00	...	0.64
1910 ...	0.61	0.29	0.92	0.44	0.52	1.17	29.41	...	0.58
1911 ...	0.54	0.22	0.84	0.46	0.78	1.96	15.00	(a)...	0.55
1912 ...	0.33	0.27	0.60	0.54	0.61	1.29	25.00	...	0.44
1913 ...	0.33	0.17	0.45	0.34	0.78	1.20	8.33	...	0.37
1914 ...	0.36	0.19	0.59	0.45	0.53	1.00	1.47	...	0.39
1915 ...	0.25	0.11	0.26	0.32	0.43	1.47	...	...	0.27
1916 ...	0.41	0.18	0.32	0.35	0.32	0.98	10.53	...	0.35
1917 ...	0.41	0.16	0.32	0.25	0.49	1.14	7.35	...	0.34

(a) Part of New South Wales prior to 1911.

A complete disappearance of mark signatures is hardly to be expected, for the available information tends to shew that two-thirds of those who sign with marks are natives of their respective States, who apparently have not made use of the advantages offered to them by the State schools.

## § 3. Deaths.

1. Male and Female Deaths, 1907 to 1917.—The total number of deaths registered in the Commonwealth from 1907 to 1917 inclusive, gives an annual average of 28,281 males and 20,815 females, the details being as follow:—

## MALE DEATHS, COMMONWEALTH, 1907 to 1917.

Year.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Nor. Terr.	Fed. Terr.	C'wealth.
1907 ...	9,444	7,977	3,482	1,998	1,866	1,083	89	...	25,939
1908 ...	9,298	8,816	3,500	2,029	1,800	1,112	77	...	26,632
1909 ...	9,184	8,070	3,419	2,080	1,671	1,030	60	...	25,514
1910 ...	9,339	8,128	3,594	2,163	1,760	1,098	72	...	26,154
1911 ...	9,973	8,355	4,060	2,179	1,923	1,037	59	(a) 5	27,591
1912 ...	11,094	9,072	4,305	2,409	2,210	1,130	61	4	30,285
1913 ...	11,508	8,495	4,195	2,563	1,852	1,189	53	4	29,859
1914 ...	10,984	9,017	4,132	2,621	1,942	1,063	69	7	29,835
1915 ...	11,439	8,860	4,695	2,587	1,887	1,083	89	14	30,654
1916 ...	11,500	8,901	4,653	2,721	1,981	1,148	108	6	31,018
1917 ...	10,445	7,952	4,027	2,398	1,802	926	52	7	27,609
Rate, (b) 1917	11.30	11.89	11.53	11.96	11.36	9.32	13.03	5.07	11.47

(a) Part of New South Wales prior to 1911. (b) Number of deaths per 1000 of mean population.

## FEMALE DEATHS, COMMONWEALTH, 1907 to 1917.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aus.	Tas.	North. Terr.	Fed. Terr.	C'wealth.
1907 ...	6,967	6,562	2,116	1,738	1,065	915	3	...	19,366
1908 ...	6,757	6,950	2,180	1,805	1,079	1,017	6	...	19,794
1909 ...	6,626	6,366	2,111	1,702	1,033	812	8	...	18,658
1910 ...	6,819	6,604	2,150	1,851	980	1,022	10	...	19,436
1911 ...	7,173	6,861	2,484	1,859	1,000	890	6	(a) 5	20,278
1912 ...	7,768	7,517	2,616	1,927	1,125	927	6	6	21,892
1913 ...	8,191	6,979	2,588	2,130	1,082	942	11	7	21,930
1914 ...	7,736	7,486	2,599	2,092	1,101	855	12	4	21,885
1915 ...	8,146	6,963	2,864	2,107	1,105	932	8	3	22,128
1916 ...	8,346	7,588	2,861	2,356	1,104	908	14	2	23,179
1917 ...	7,496	6,603	2,528	1,967	967	842	11	6	20,420
Rate, (b) 1917	7.93	8.96	7.63	8.49	6.45	8.46	11.36	5.39	8.18

(a) Part of New South Wales prior to 1911. (b) Number of deaths per 1000 of mean population.

**ART 2. Male and Female Death Rates, 1917.**—The crude male and female death rates for 1917 only are given in the last line of the preceding tables. South Australia has the highest rate for males, and Victoria for females, while Tasmania has the lowest male, and Western Australia the lowest female death rate. The rates for the two Territories are based on very small numbers, and comparisons with the States are misleading.

Owing to differences in the age constitution of the six States, the crude rates are not, however, strictly comparable, but for the purpose of calculating the "Index of Mortality" (see page 201) a distribution into five age-groups has been made, and the death rates are shewn for males and females in each State in five-year age groups for the three years 1910-1912, that is, for the census year and for the year immediately preceding and following, on page 196.

**3. Death Rates of Various Countries.**—A comparison with foreign States is, for the same reason, apt to shew the Commonwealth in too favourable a light, but even if an allowance for the different age constitution were made, it would still be found occupying a very enviable position. The following table gives particulars of the death rates of various countries for the latest available years:—

**DEATH RATES (a) OF VARIOUS COUNTRIES.**

Country.	Year.	Crude Death Rate.	Country.	Year.	Crude Death Rate.
Tasmania ...	1917	8.9	Prussia ...	1913	14.9
Western Australia ...	1917	9.0	German Empire ...	1913	15.0
New South Wales ...	1917	9.6	Finland ...	1914	15.6
Queensland ...	1917	9.6	Ireland ...	1916	16.5
New Zealand ...	1917	9.6	France ...	1913	17.7
Commonwealth ...	1917	9.8	Italy ...	1914	17.9
South Australia ...	1917	10.1	Japan ...	1913	19.5
Victoria ...	1917	10.4	Austria ...	1912	20.5
Ontario (Canada) ...	1915	12.0	Serbia ...	1912	21.1
Netherlands ...	1915	12.4	Bulgaria ...	1911	21.5
Denmark ...	1915	12.8	Jamaica ...	1915	21.6
Norway ...	1915	13.3	Spain ...	1914	22.1
Switzerland ...	1915	13.3	Hungary ...	1912	23.3
England and Wales ...	1916	14.4	Rumania ...	1914	23.8
Scotland ...	1916	14.6	Ceylon ...	1915	25.2
United Kingdom ...	1916	14.6	Chile ...	1914	27.8
Sweden ...	1915	14.6	Russia, European ...	1909	28.9
Belgium ...	1912	14.8			

(a) Number of deaths per 1000 of mean population.

**4. Total Deaths, 1907 to 1917.**—The total number of deaths in each of the Commonwealth States during the eleven years 1907 to 1917, is shewn below:—

**TOTAL DEATHS, COMMONWEALTH, 1907 to 1917.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aus.	Tas.	North Terr.	Federal Terr.	C'wealth.
1907 ...	16,411	14,539	5,598	3,736	2,931	1,998	92	...	45,805
1908 ...	16,055	15,766	5,680	3,834	2,879	2,129	83	...	46,426
1909 ...	15,810	14,436	5,530	3,782	2,704	1,842	68	...	44,172
1910 ...	16,158	14,732	5,744	4,014	2,740	2,120	82	...	45,590
1911 ...	17,146	15,216	6,544	4,038	2,923	1,927	65	(a) 10	47,869
1912 ...	18,862	16,589	6,921	4,386	3,335	2,057	67	10	52,177
1913 ...	19,699	15,474	6,783	4,693	2,934	2,131	64	11	51,789
1914 ...	18,720	16,503	6,731	4,713	3,043	1,918	81	11	51,720
1915 ...	19,585	15,823	7,559	4,694	2,992	2,015	97	17	52,782
1916 ...	19,846	16,489	7,514	5,077	3,085	2,056	122	8	54,197
1917 ...	17,941	14,555	6,555	4,365	2,769	1,768	63	13	48,029

(a) Part of New South Wales prior to 1911.

5. **Crude Death Rates, 1907 to 1917.**—The death rate for 1917 shewed a decrease from that for 1916 in every State of the Commonwealth, and was the lowest on record in every State and the Commonwealth as a whole, with the exception of South Australia, where the rate had been lower in the three years 1909 to 1911.

**CRUDE DEATH RATE (a), COMMONWEALTH, 1907 to 1917.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	North Terr.	Federal Terr.	C'wealth.
1907 ...	10.63	11.86	10.31	10.16	11.47	10.81	24.07	...	10.99
1908 ...	10.20	12.71	10.26	10.14	11.17	11.36	22.71	...	11.07
1909 ...	9.89	11.45	9.70	9.74	10.27	9.68	19.22	...	10.33
1910 ...	9.89	11.49	9.71	10.09	10.11	11.10	24.10	...	10.43
1911 ...	10.32	11.52	10.65	9.82	10.19	10.13	19.58	(b) 5.62	10.66
1912 ...	10.86	12.23	10.96	10.28	11.06	10.73	19.95	4.91	11.23
1913 ...	10.89	11.11	10.39	10.82	9.34	10.87	17.49	4.49	10.78
1914 ...	10.11	11.59	9.97	10.71	9.41	9.67	21.59	4.16	10.51
1915 ...	10.48	11.09	11.00	10.68	9.28	10.11	22.03	6.89	10.66
1916 ...	10.63	11.70	11.09	11.73	9.80	10.38	25.16	3.06	11.04
1917 ...	9.60	10.36	9.64	10.10	8.97	8.89	12.71	5.21	9.80

(a) Number of deaths per thousand of mean population for year. (b) Part of New South Wales prior to 1911.

6. **Male and Female Death Rates, 1907 to 1917.**—The rise in the Commonwealth rate in 1908 was practically limited to the male death rate, as the subjoined table shews. The decrease from 1908 to 1909 was fairly equal for the male and female rates, and the increase in 1910 was due to a rise in the female rate. From 1910 to 1911, and again from 1911 to 1912, the increase in the male rate was about one and a-half times as marked as that in the female rate, while the decrease from 1912 to 1913 was more than twice as great for the male rate as for the female rate. The decrease from 1913 to 1914 was fairly equal for the male and female rates, while in 1915 and 1916 there were increases in the male rate, with a further slight decrease in the female rate in 1915, followed by an increase in 1916. In 1917 there were equally pronounced falls both in the male and female rates, which were both the lowest for any year for which records are available.

**MALE AND FEMALE DEATH RATES, (a), COMMONWEALTH, 1907 to 1917.**

Year.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.
Male rate	12.11	12.24	11.51	11.54	11.82	12.51	11.93	11.67	12.08	12.65	11.47
F'male „	9.77	9.81	9.06	9.24	9.40	9.84	9.53	9.27	9.16	9.44	8.18
Crude total rate	10.99	11.07	10.33	10.43	10.66	11.23	10.78	10.51	10.66	11.04	9.80

(a) Number of deaths per thousand of mean population.

7. **Infantile Death Rate.**—(i.) *Deaths and Death Rates of Male and Female Infants, 1907 to 1917.* Improvement continues to take place in the infantile death rate since 1907, in which year it stood at 81.06 per thousand births registered, while in 1917 it had fallen to 55.91 per thousand, a rate lower than that experienced in any previous year, the lowest rate previously experienced being that of the year 1915, when it stood at 67.52 per thousand. In the following table, which shews both the total number of deaths of children under one year and the rate per thousand births since 1907, males and females are distinguished. The universal experience that during the first few years of life the excess of male births tends to disappear, as a consequence of the higher death rate of male infants, is shewn by the fact that out of 706,295 male infants born from 1907 to 1917, 55,188 died during their first year of life, while of 671,769 female infants the number who died was only 42,528:—

**NUMBER OF INFANTILE DEATHS AND RATES OF INFANTILE MORTALITY,  
COMMONWEALTH, 1907 to 1917.**

Year.	Registered Deaths under one year.			Rate of Infantile Mortality (a).		
	Males.	Females.	Total.	Males.	Females.	Total.
1907 ...	4,993	3,952	8,945	88.39	73.38	81.06
1908 ...	4,885	3,791	8,676	85.53	69.65	77.78
1909 ...	4,604	3,559	8,163	78.73	64.02	71.56
1910 ...	4,916	3,822	8,738	81.65	67.53	74.81
1911 ...	4,745	3,624	8,369	75.91	60.72	68.49
1912 ...	5,446	4,102	9,548	80.06	63.04	71.74
1913 ...	5,472	4,328	9,800	78.81	65.30	72.21
1914 ...	5,582	4,279	9,861	79.06	63.51	71.47
1915 ...	5,127	3,980	9,107	74.25	60.47	67.52
1916 ...	5,186	4,057	9,243	76.82	63.47	70.33
1917 ...	4,232	3,034	7,266	63.27	48.10	55.91

(a) Number of deaths under 1 year per 1000 births registered.

(ii.) *Infantile Mortality, 1907 to 1917.* Divided among the States and Territories, the rates of infantile mortality during the last eleven years were as follows:—

**RATES (a) OF INFANTILE MORTALITY, COMMONWEALTH, 1907 to 1917.**

Year.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	North Terr.	Federal Territory.	Com'wealth.
1907 ...	88.46	72.60	77.65	66.23	97.51	82.97	185.19	...	81.06
1908 ...	75.20	86.05	70.67	69.50	84.72	75.16	58.82	...	77.78
1909 ...	73.87	71.36	71.50	60.91	78.01	64.91	111.11	...	71.56
1910 ...	74.71	76.88	62.90	70.21	78.18	101.68	200.00	...	74.81
1911 ...	69.46	68.70	65.36	60.60	76.01	73.39	96.77	...	68.49
1912 ...	71.00	74.48	71.73	61.68	82.06	66.80	121.21	(b) 33.34	71.74
1913 ...	77.78	70.53	63.35	69.93	70.30	70.68	115.38	76.92	72.21
1914 ...	69.29	78.27	63.93	75.79	68.12	71.46	51.72	22.73	71.47
1915 ...	67.67	68.78	64.33	67.04	66.54	72.37	65.57	42.55	67.52
1916 ...	67.15	74.63	70.27	73.21	66.22	74.97	40.54	15.87	70.33
1917 ...	56.93	56.82	53.87	53.06	57.09	52.27	43.48	45.45	55.91

(a) Number of deaths under 1 year per 1000 births registered. (b) Part of New South Wales prior to 1911.

The movement has been a fairly regular one, shewing slight increases in the rates during 1910, 1913, and 1916. The minimum rates in the six States, prior to 1917, occurred at different periods, viz., Tasmania, in 1909; Queensland, in 1910; Victoria and South Australia, in 1911; New South Wales, in 1916, and Western Australia, in 1915. The regrettable increase in the Victorian rate for 1908 over that of 1907 was wholly due to the large mortality caused by the phenomenal heat of January, 1908. With the exception of Queensland, where the 1908 rate was exceptionally low, the 1909 rate was the lowest ever experienced up to that date in any of the States. A rise occurred in every State in 1910 with the exception of Queensland, which was counterbalanced by a considerable decrease during 1911 in every State but Queensland. In 1912 the rates shewed a rise in every State except Tasmania, and this was followed by a decrease in 1913 in Victoria, Queensland, and Western Australia, and by a further rise in New South Wales, South Australia, and Tasmania. In 1914 the rates increased in every State except New South Wales and Western Australia, the increases in Victoria and South Australia being particularly noticeable. In 1915 the rate decreased in New South Wales, Victoria, South Australia, and Western Australia, and increased slightly in Queensland and Tasmania, while in 1916 it increased in every State with the exception of New South Wales and Western Australia. A considerable decrease is shown by every State during 1917, and the rates for that year are the lowest on record in every State and in the Commonwealth as a whole.

The total number of births, and of deaths of children under one year of age, and the average rate of infantile mortality for the eleven years 1907 to 1917 are shewn in the following table for each of the fifty-nine districts for which the vital statistics of the Commonwealth have been tabulated during that period. To afford a better idea of the geographical position of the districts, the name of a town situated in a fairly central part of each district has been added. The figures for the Federal Territory and for Lord Howe Island are included for the sake of completeness, but are too small to be used in comparison with others.

### INFANTILE MORTALITY FOR THE ELEVEN YEARS 1907 to 1917.

States and Territories.	Districts.	Towns.	Total Births, 1907-17.	Total Deaths of Children under one year, 1907-17.	Average Infantile Mortality per 1000 Births, 1907-17.
New South Wales	Metropolitan	Sydney	205,675	15,517	75.44
"	North Coast	Grafton	44,006	2,382	54.13
"	Lower Hunter	Newcastle	55,354	4,095	73.98
"	Cumberland	Farramatta	23,601	1,583	67.07
"	South Coast	Nowra	23,031	1,463	63.52
"	Northern Tableland	Armidale	32,368	2,119	65.47
"	Central Tableland	Bathurst	38,758	2,905	74.95
"	Southern Tableland	Goulburn	29,423	1,904	64.71
"	North-Western Slope	Moree	13,202	963	72.94
"	Central-Western Slope	Dubbo	19,413	1,439	74.13
"	South-Western Slope	Temora	20,633	1,272	61.65
"	Riverina	Hay	11,253	687	61.05
"	Plains East of Darling	Cobar	6,236	585	93.81
"	Trans-Darling Plains	Broken Hill	13,607	1,463	107.52
"	Lord Howe Island		19	3	157.89
Victoria	Metropolitan	Melbourne	171,866	14,299	83.20
"	Central	Geelong	34,446	2,255	65.46
"	North-Central	Kyneton	19,050	1,155	60.63
"	Western	Hamilton	42,737	3,000	70.20
"	Wimmera	Horsham	16,790	947	56.40
"	Mallee	Ultima	9,285	551	59.34
"	Northern	Rochester	40,951	2,727	66.59
"	North-Eastern	Beechworth	14,499	843	58.14
"	Gippsland	Sale	19,110	1,017	53.22
Queensland	Metropolitan	Brisbane	51,037	4,055	79.45
"	Moreton	Ipswich	25,101	1,392	54.80
"	Wide Bay	Maryborough	25,067	1,848	53.78
"	Port Curtis	Rockhampton	16,521	1,238	74.48
"	Edgumbe	Townsville	19,391	1,188	59.73
"	Rockingham	Cairns	9,788	597	60.99
"	York Peninsula	Cooktown	1,516	101	66.62
"	Carpentaria	Croydon	3,420	280	81.87
"	Central-Western	Winton	948	80	84.39
"	South-Western	Charleville	2,519	252	100.04
"	Central	Blackall	5,325	373	64.99
"	Maranoa	Roma	4,315	258	66.74
"	Downs	Toowoomba	28,640	1,776	61.58
South Australia	Metropolitan	Adelaide	59,258	4,432	74.79
"	Central	Gawler	25,846	1,397	52.04
"	Lower North	Redruth	19,530	1,455	75.05
"	Upper North	Port Augusta	6,404	351	54.81
"	South-Eastern	Mount Gambier	6,759	338	50.01
"	Western	Port Lincoln	4,429	194	43.80
Western Australia	Metropolitan	Perth	39,482	3,206	81.20
"	Northern Agricultural	Geraldton	12,650	836	66.09
"	South-Western	Katanning	19,914	1,016	51.02
"	Eastern Goldfields	Kalgoorlie	15,181	1,311	86.96
"	Northern Goldfields	Pilbara	3,147	284	90.24
"	North-Western	Roebourne	450	27	60.00
"	Northern	Broome	394	35	88.83
Tasmania	Hobart	Hobart	13,618	1,196	87.82
"	Launceston	Launceston	8,876	808	91.03
"	North-Eastern	Scottsdale	7,488	493	65.84
"	North-Western	Stanley	15,400	937	60.84
"	Midland	Zeehan	8,282	597	72.08
"	South-Eastern	Sorell	6,388	386	60.43
"	South-Western	Franklin	1,966	132	66.13
Northern Territory	—	Darwin	506	44	86.96
Federal Territory (1911-17)	—	Canberra	322	10	31.06



(iii.) *Infantile Mortality in Various Countries and Cities.* Compared with European countries, the cities and States of the Commonwealth occupy a very enviable position, and it may be pointed out that experience has shewn that a high birth rate is often, though not invariably, accompanied by a high infantile death rate. The figures in the subjoined tables relate to the latest years for which returns are available:—

#### RATE (a) OF INFANTILE MORTALITY IN VARIOUS COUNTRIES.

Country.	Year.	Rate of Infantile Mortality. (a)	Crude Birth Rate. (b)	Country.	Year.	Rate of Infantile Mortality. (a)	Crude Birth Rate. (b)
New Zealand ...	1915	50	25.4	Ontario (Canada)...	1915	102	24.2
Tasmania ...	1917	52	27.0	Finland ...	1915	104	26.9
South Australia ...	1917	53	26.2	Belgium ...	1912	120	22.6
Queensland ...	1917	54	29.1	Italy ...	1913	137	31.7
Commonwealth ...	1917	56	26.5	Prussia ...	1912	146	28.9
New South Wales ...	1917	57	28.1	Serbia ...	1911	146	36.2
Victoria ...	1917	57	23.5	Japan ...	1913	150	33.3
Western Australia ...	1917	57	25.5	German Empire ...	1913	151	27.5
Norway ...	1914	68	25.2	Bulgaria ...	1911	156	40.2
Sweden ...	1913	70	23.2	Spain ...	1907	158	33.6
France ...	1912	78	19.0	Ceylon ...	1915	171	37.0
Ireland ...	1916	83	21.1	Jamaica ...	1915	175	34.6
Netherlands ...	1915	87	26.2	Austria ...	1912	180	31.3
England and Wales ...	1916	91	20.9	Hungary ...	1912	186	36.3
United Kingdom ...	1916	91	21.1	Rumania ...	1914	187	42.5
Switzerland ...	1914	91	22.5	Russia, European ...	1909	248	44.0
Denmark ...	1915	95	24.2	Chile ...	1914	286	37.0
Scotland ...	1916	97	22.8				

(a) Number of deaths under 1 year per 1000 births registered. (b) Number of births per 1000 of mean population.

#### RATE (a) OF INFANTILE MORTALITY IN VARIOUS CITIES.

City.	Year.	Rate of Infantile Mortality. (a)	City.	Year.	Rate of Infantile Mortality. (a)
Zurich ...	1916	55	Birmingham ...	1915	118
Rome ...	1915	56	Milan ...	1916	124
Amsterdam ...	1916	58	Paris ...	1915	125
Sydney ...	1917	59	Genoa ...	1916	126
Adelaide ...	1917	60	Belfast ...	1912	129
Hobart ...	1917	60	Manchester ...	1915	129
Brisbane ...	1917	63	Hamburg ...	1912	130
Perth ...	1917	64	Leipzig ...	1912	133
Rotterdam ...	1916	65	Munich ...	1912	134
Melbourne ...	1917	66	Antwerp ...	1912	140
Geneva ...	1916	73	Budapest ...	1912	141
Stockholm ...	1916	80	Berlin ...	1912	142
Copenhagen ...	1915	92	Chicago ...	1916	145
Buenos Aires ...	1916	94	Dublin ...	1916	147
Edinburgh ...	1916	100	Vienna ...	1912	149
New York ...	1915	102	Marseilles ...	1916	157
Washington ...	1916	106	Brussels ...	1912	166
Christiania ...	1912	108	Rio de Janeiro ...	1912	174
London ...	1915	110	Madrid ...	1915	177
Glasgow ...	1916	111	Bucharest ...	1912	185
Monte Video ...	1916	111	Florence ...	1916	192
Aberdeen ...	1916	112	Montreal ...	1911	242
Toronto ...	1911	114	Petrograd ...	1912	249
Lyons ...	1916	115	Moscow ...	1915	317
Liverpool ...	1916	117	Bombay ...	1915	329

(a) Number of deaths under 1 year per 1000 births registered.

(iv.) *The Effect of Infantile Mortality on Birth Rate.* It has been contended by certain investigators that the birth-rate question is intimately related to that of infantile mortality, and that in many cases a declining birth rate may be to a large extent accounted for by a decline in the infantile death rate, since, in the case in which an infant has survived, the period elapsing before the birth of the next child is likely to be longer than in the case in which the infant has died. It may indeed be readily admitted that in any community the birth rate may be affected in a definite way by variations of infantile mortality, but careful investigation of the question serves to shew that, whether considered from the theoretical aspect with a view to determining the *maximum* and the *probable* effects which a given change in the rate of infantile mortality would produce in the birth rate, or from the practical point of view by observing the fluctuations in the birth rates of various countries which have been collateral with changes in their rates of infantile mortality, there is little ground for the contention that the rate of infantile mortality is an important factor in determining the variations in the birth rate. One calculation which has been made on the basis of normal Australian conditions indicates that the *maximum* effect of increasing the rate of infantile mortality 100 per cent. would, in the absence of other disturbing causes, be to increase the birth rate by only  $3\frac{1}{4}$  per cent., whilst the *probable* effect would be considerably less than this. In other words, the *maximum* effect of an increase in the rate of infantile mortality from 100 to 200 per 1000 births would be to increase the birth rate from say 30 to 31 per 1000 of population. It may be noted too, that although in some countries an increase in birth-rate accompanies an increase in the rate of infantile mortality, in others the birth rate would appear to be quite unaffected by such an increase, while in the case of England and Wales, Scotland, and Ireland, the tendency apparently exhibited is for an increase in the rate of infantile mortality to be associated with a decrease in the birth rate. The conclusion which these results appear to warrant is that although infantile mortality undoubtedly tends on the whole to increase the birth rate, the practical effect produced is so slight that the existence of such a relation may in any instance be quite masked by more important causes of variation.

8. **Deaths in Age-Groups, 1907 to 1917.**—A distribution into age-groups has been made of the 540,056 deaths which occurred in the Commonwealth from 1907 to 1917, and the results are tabulated for each State. It is, however, sufficient here to shew the results for the Commonwealth as a whole, which are as follows:—

**DEATHS IN AGE-GROUPS, COMMONWEALTH, 1907 to 1917.**

Ages.	Males.	Females.	Total.	Percentage of Total Males.	Percentage of Total Females.	Percentage of Total.
Under 1 year ...	55,188	42,528	97,716	17.74	18.57	18.09
1 year and under 5 ...	17,586	15,495	33,081	5.65	6.77	6.13
5 years and under 20 ...	16,492	14,305	30,797	5.30	6.25	5.70
20 years and under 40 ...	39,732	35,512	75,244	12.77	15.51	13.93
40 years and under 60 ...	67,242	39,140	106,382	21.62	17.09	19.70
60 years and under 65 ...	19,107	11,184	30,291	6.14	4.89	5.61
65 years and over ...	95,092	70,677	165,769	30.57	30.87	30.70
Age not stated ...	651	125	776	0.21	0.05	0.14
Total ...	311,090	228,966	540,056	100.00	100.00	100.00

9. **Deaths at Single Ages and in Age-Groups, 1917.**—The 48,029 deaths which were registered in the Commonwealth in the year 1917 will be found tabulated under single years, and in groups of five years for each State and Territory, in "Bulletin No.

34, Commonwealth Demography, 1917." It has been thought advisable to tabulate the deaths during the first two years of life in greater detail. The first month has, therefore, been shewn in weeks, and the twenty-three months up to the end of the second year in months. This tabulation shews a great number of children dying during the first week, the number gradually diminishing towards the end of the second year. The particulars relating to the Commonwealth are given in the following table:—

## DEATHS AT SINGLE AGES AND IN AGE-GROUPS, 1917.

## COMMONWEALTH.

Ages.	Males.	Females.	Total.	Ages.	Males.	Females.	Total.
Under 1 week ...	1,643	1,182	2,825	10 years ...	77	73	150
1 week and under 2 ...	279	193	472	11 " ...	81	47	128
2 weeks " " 3 ...	178	129	307	12 " ...	60	62	122
3 " " " 4 ...	117	103	220	13 " ...	73	61	134
				14 " ...	82	57	139
Total under one month ...	2,217	1,607	3,824				
				Total 10 years and under 15	373	300	673
1 month and under 2 ...	345	212	557				
2 months " " 3 ...	275	175	450	15 years ...	84	67	151
3 " " " 4 ...	226	161	387	16 " ...	83	67	150
4 " " " 5 ...	189	131	320	17 " ...	98	91	189
5 " " " 6 ...	155	121	276	18 " ...	116	64	180
6 " " " 7 ...	152	133	285	19 " ...	97	103	200
7 " " " 8 ...	159	108	267				
8 " " " 9 ...	142	111	253	Total 15 years and under 20	478	392	870
9 " " " 10 ...	142	89	231				
10 " " " 11 ...	122	103	225	20 years ...	100	124	224
11 " " " 12 ...	108	83	191	21 " ...	106	123	229
				22 " ...	120	139	259
Total under 1 year ...	4,232	3,034	7,266	23 " ...	146	147	293
				24 " ...	132	148	280
12 months and under 13 ...	247	196	443				
13 " " " 14 ...	63	63	126	Total 20 years and under 25	604	681	1,285
14 " " " 15 ...	66	47	113				
15 " " " 16 ...	51	39	90	25 years ...	123	165	288
16 " " " 17 ...	42	48	90	26 " ...	146	152	298
17 " " " 18 ...	56	31	87	27 " ...	130	178	308
18 " " " 19 ...	52	47	99	28 " ...	146	153	299
19 " " " 20 ...	32	32	64	29 " ...	164	188	352
20 " " " 21 ...	31	20	51				
21 " " " 22 ...	24	32	56	Total 25 years and under 30	709	936	1,545
22 " " " 23 ...	30	18	48				
23 " " " 24 ...	23	7	30	30 years ...	184	177	361
				31 " ...	155	146	301
Total under 2 years ...	4,949	3,614	8,563	32 " ...	150	171	321
				33 " ...	171	182	353
2 years ...	299	272	571	34 " ...	172	174	346
3 " ...	214	209	423				
4 " ...	178	152	330	Total 30 years and under 35	832	850	1,682
Total under 5 years ...	5,640	4,247	9,887	35 years ...	211	160	371
				36 " ...	182	174	356
5 years ...	153	125	278	37 " ...	183	162	345
6 " ...	128	113	241	38 " ...	224	169	393
7 " ...	99	97	196	39 " ...	221	169	390
8 " ...	89	67	156				
9 " ...	82	54	136	Total 35 years and under 40	1,021	834	1,855
Total 5 years and under 10	551	456	1,007				

## DEATHS AT SINGLE AGES AND IN AGE-GROUPS, 1917—Continued.

Ages.	Males.	Females.	Total.	Ages.	Males.	Females.	Total.
40 years ...	351	164	415	75 years ...	470	363	833
41 " ...	161	136	297	76 " ...	420	334	754
42 " ...	222	168	390	77 " ...	402	313	715
43 " ...	206	161	367	78 " ...	407	294	701
44 " ...	231	139	370	79 " ...	312	314	626
Total 40 years and under 45	1,071	768	1,839	Total 75 years and under 80	2,011	1,618	3,629
45 years ...	313	153	471	80 years ...	395	322	717
46 " ...	254	167	421	81 " ...	309	239	548
47 " ...	306	185	491	82 " ...	305	258	563
48 " ...	301	176	477	83 " ...	287	232	519
49 " ...	292	173	465	84 " ...	306	234	540
Total 45 years and under 50	1,466	859	2,325	Total 80 years and under 85	1,602	1,285	2,887
50 years ...	367	202	569	85 years ...	247	207	454
51 " ...	265	137	402	86 " ...	221	147	368
52 " ...	368	221	589	87 " ...	184	160	344
53 " ...	370	197	567	88 " ...	136	121	257
54 " ...	372	227	599	89 " ...	109	94	203
Total 50 years and under 55	1,742	984	2,726	Total 85 years and under 90	897	729	1,626
55 years ...	404	185	589	90 years ...	67	89	156
56 " ...	429	256	685	91 " ...	48	59	107
57 " ...	425	199	624	92 " ...	51	53	104
58 " ...	416	242	658	93 " ...	35	30	65
59 " ...	421	228	649	94 " ...	28	34	62
Total 55 years and under 60	2,095	1,110	3,205	Total 90 years and under 95	229	265	494
60 years ...	507	257	794	95 years ...	20	26	46
61 " ...	363	221	584	96 " ...	15	9	24
62 " ...	428	254	682	97 " ...	9	11	20
63 " ...	416	244	660	98 " ...	9	9	18
64 " ...	375	248	623	99 " ...	6	7	13
Total 60 years and under 65	2,089	1,254	3,343	Total 95 yrs. and under 100	59	62	121
65 years ...	458	296	754	100 years ...	2	3	5
66 " ...	365	226	591	101 " ...	3	...	3
67 " ...	396	272	668	102 " ...	2	1	3
68 " ...	435	273	708	103 " ...	2	...	2
69 " ...	405	283	688	104 " ...	2	...	2
Total 65 years and under 70	2,059	1,350	3,409	105 " ...	1	2	3
70 years ...	448	324	772	106 " ...	2	...	2
71 " ...	337	251	588	107 " ...	1	...	1
72 " ...	409	318	727	108 " ...	1	...	1
73 " ...	412	321	733	Total 100 years and over...	16	6	22
74 " ...	414	309	723	Age not stated ...	45	11	56
Total 70 years and under 75	2,020	1,523	3,543	Total all ages ...	27,609	20,420	48,029

The following tables shew the death rate per 1000 living at each age for the three years 1910, 1911 and 1912, viz., the Census year 1911, and the years immediately preceding and following. The Northern Territory is included with South Australia, and the Federal Territory with New South Wales :—

**AVERAGE ANNUAL DEATH RATES PER 1000 LIVING IN VARIOUS  
AGE-GROUPS, 1910 to 1912.**

**MALES.**

Age Group.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
0 to 4 years	25.40	24.71	23.30	21.30	23.44	24.65	24.71
5 " 9 "	2.11	2.39	2.39	1.85	2.61	2.53	2.26
10 " 14 "	1.75	1.69	1.74	1.40	2.16	1.70	1.72
15 " 19 "	2.42	2.41	2.92	2.43	2.86	2.59	2.52
20 " 24 "	3.37	3.27	4.83	3.00	5.17	3.57	3.65
25 " 29 "	3.91	4.13	5.57	3.57	5.86	4.49	4.35
30 " 34 "	4.90	4.83	5.96	5.40	6.75	3.77	5.20
35 " 39 "	6.08	6.31	7.54	7.15	8.41	6.28	6.68
40 " 44 "	8.25	8.26	9.65	8.31	10.37	6.17	8.58
45 " 49 "	10.91	11.05	13.83	10.27	14.96	9.25	11.58
50 " 54 "	14.78	15.33	17.77	13.02	17.66	14.08	15.36
55 " 59 "	21.93	21.41	23.01	19.99	24.65	16.24	21.67
60 " 64 "	30.99	31.52	31.25	31.94	35.06	28.39	31.38
65 " 69 "	45.80	50.53	51.53	45.94	45.96	38.29	47.69
70 " 74 "	71.49	74.28	70.94	58.38	78.74	58.79	70.88
75 " 79 "	117.05	115.68	112.40	99.49	110.54	108.60	114.04
80 " 84 "	181.34	174.56	190.89	165.68	185.23	148.67	176.32
85 " 89 "	252.58	270.76	202.56	225.42	328.21	313.87	257.73
90 and over	375.35	365.88	272.73	279.57	321.43	465.61	357.11

**FEMALES.**

0 to 4 years	20.96	19.79	20.07	16.96	21.76	21.27	20.22
5 " 9 "	1.78	2.27	2.29	1.71	2.58	1.88	2.04
10 " 14 "	1.41	1.81	1.45	1.25	1.77	2.51	1.59
15 " 19 "	1.96	2.42	2.20	2.19	2.01	3.47	2.22
20 " 24 "	3.22	3.74	3.76	3.44	3.82	4.09	3.53
25 " 29 "	4.02	4.31	4.68	4.79	4.42	4.66	4.31
30 " 34 "	4.51	4.98	4.46	4.92	4.88	4.93	4.73
35 " 39 "	5.84	6.02	5.79	5.71	6.15	7.68	5.97
40 " 44 "	6.24	6.63	7.11	5.80	6.73	5.67	6.44
45 " 49 "	7.63	8.05	9.07	7.91	8.40	7.02	7.98
50 " 54 "	11.22	11.30	11.73	9.72	11.82	8.76	11.07
55 " 59 "	14.38	15.55	14.13	12.63	14.18	15.80	14.60
60 " 64 "	21.69	22.27	21.64	20.54	20.44	19.50	21.60
65 " 69 "	37.81	36.48	34.69	35.01	34.59	35.09	36.47
70 " 74 "	55.75	58.36	57.82	48.28	54.52	55.11	56.13
75 " 79 "	97.62	98.27	86.11	91.32	92.45	93.30	95.91
80 " 84 "	154.31	157.19	138.33	137.87	144.14	150.77	151.89
85 " 89 "	184.60	225.65	200.82	202.17	186.67	254.45	208.59
90 and over	307.43	361.44	351.52	328.17	358.97	317.88	334.87

**PERSONS.**

0 to 4 years	23.21	22.29	21.72	19.16	25.15	23.00	22.50
5 " 9 "	1.95	2.33	2.34	1.78	2.60	2.21	2.15
10 " 14 "	1.58	1.75	1.60	1.33	1.97	2.10	1.66
15 " 19 "	2.19	2.42	2.57	2.31	2.45	3.03	2.37
20 " 24 "	3.30	3.51	4.33	3.22	4.60	3.84	3.59
25 " 29 "	3.96	4.22	5.17	4.17	5.29	4.58	4.33
30 " 34 "	4.71	4.92	5.29	5.16	6.00	4.34	4.97
35 " 39 "	5.97	6.16	6.78	6.44	7.51	6.94	6.34
40 " 44 "	7.31	7.44	8.58	7.09	9.06	5.94	7.59
45 " 49 "	9.45	9.59	11.95	9.14	12.73	8.20	9.96
50 " 54 "	13.25	13.40	15.48	11.49	15.64	11.63	13.48
55 " 59 "	18.63	18.52	19.59	16.67	20.87	16.04	18.52
60 " 64 "	26.79	26.86	27.44	26.48	29.25	24.08	26.87
65 " 69 "	42.18	43.26	44.44	40.58	41.22	36.66	42.37
70 " 74 "	64.41	65.98	65.87	53.36	68.67	56.91	63.91
75 " 79 "	108.56	107.11	101.89	95.17	103.30	100.66	105.58
80 " 84 "	169.10	171.29	166.15	150.82	170.12	149.75	164.97
85 " 89 "	217.51	248.40	201.72	211.72	266.67	284.83	232.64
90 and over	337.70	363.94	308.54	307.81	333.33	404.98	345.44

The tables shew a high death rate for children under five years of age, which rapidly diminishes until, at ages 10 to 14, a rate of 1.66 per 1000 is shewn, which is the lowest at any age. The rate then gradually rises with increasing age until, at the ages 90 and over, more than one-third die every year.

10. **Deaths of Centenarians, 1917.**—Particulars as to the twenty-two persons who died in 1917, aged 100 years and upwards, are given in the following table. It must, of course, be understood that while the Registrars-General of the various States take the greatest care to have statements as to abnormally high ages verified as far as possible, no absolute reliance can be placed on the accuracy of the ages shewn, owing to the well-known tendency of very old people to overstate their ages. No attempt has been made by the Commonwealth Bureau of Census and Statistics to verify the truth of the statements made. The fact must not be lost sight of in connection with this question, that while parish registers in the United Kingdom often date very far back, compulsory registration of births dates practically only from 1874, the Act passed in 1836 having left many loop-holes open for those unwilling to register the births of their children:—

#### DEATHS OF CENTENARIANS, 1917.—COMMONWEALTH.

##### MALES.

Age	Locality where Death occurred.	State.	Cause of Death.	Occupation.	Birth-place.	Length of Residence in Commonwealth.
Yrs						
108	Mansfield ...	Victoria ...	Senility ...	Miner ...	China ...	40 years
107	Murwillumbah ...	N.S.W. ...	" ...	Labourer ...	N. Zealand ...	45 "
106	Cargo ...	Tasmania ...	" ...	Farmer ...	Ireland ...	68 "
106	Devonport ...	Tasmania ...	" ...	Labourer ...	Ireland ...	65 "
105	Campbellfield ...	Victoria ...	" ...	Coachgilder ...	England ...	54 "
104	Yea ...	" ...	" ...	Farmer ...	Ireland ...	43 "
104	Goondiwindi ...	Queensland ...	" ...	Unspecified ...	China ...	Unspecified
104	Northam ...	W. Australia ...	" ...	Farmer ...	Ireland ...	82 years
103	Smithfield ...	S. Australia ...	Chronic Bronchitis ...	Labourer ...	Ireland ...	63 "
102	Gladesville ...	N.S.W. ...	Acute Bronchitis ...	Unspecified ...	N.S.W. ...	Native
102	Salé ...	Victoria ...	Senility ...	Unspecified ...	Ireland ...	42 years
101	Collingwood ...	" ...	" ...	Sawyer ...	Ireland ...	Unspecified
101	Perth ...	W. Australia ...	" ...	Gentleman ...	Scotland ...	64 years
101	Hobart ...	Tasmania ...	" ...	Gentleman ...	Scotland ...	70 "
100	Sea Lake ...	Victoria ...	" ...	Unspecified ...	Ireland ...	60 "
100	North Melbourne ...	" ...	" ...	Traveller ...	Scotland ...	79 "

##### FEMALES.

105	Richmond ...	N.S.W. ...	Senility ...	" ...	N.S.W. ...	Native
105	South Melbourne ...	Victoria ...	" ...	" ...	Ireland ...	35 years
102	New Angledool ...	N.S.W. ...	" ...	" ...	N.S.W. ...	Native
100	Parramatta ...	" ...	" ...	" ...	B.W. Indies ...	79 years
100	Waverley ...	" ...	Gastritis ...	" ...	England ...	50 "
100	Adelaide ...	S. Australia ...	Senility ...	" ...	England ...	61 "

11. **Length of Residence in the Commonwealth of Persons who Died in 1917.**—The length of residence in the Commonwealth of all persons whose deaths were registered in the year 1917 has been tabulated for all the States, and a summary of the results is shewn below:—

#### LENGTH OF RESIDENCE IN COMMONWEALTH OF PERSONS WHO DIED IN 1917.

Length of Residence.	Male Deaths.	Female Deaths.	Total Deaths.	Length of Residence.	Male Deaths.	Female Deaths.	Total Deaths.
Born in the C'wealth...	15,809	13,006	28,815	Resident 25 to 29 years	509	287	796
Resident under 1 year	81	12	93	" 30 to 34 "	1,267	626	1,893
" 1 year ...	37	16	53	" 35 to 39 "	831	439	1,270
" 2 years ...	70	39	109	" 40 to 44 "	876	464	1,340
" 3 " ...	72	73	145	" 45 to 49 "	490	303	793
" 4 " ...	144	90	234	" 50 to 54 "	1,129	902	2,031
" 5 " ...	150	103	253	" 55 to 59 "	815	686	1,501
" 6 " ...	127	86	213	" 60 to 64 "	1,525	1,364	2,889
" 7 " ...	81	44	125	" 65 yrs. & over	1,015	1,021	2,036
" 8 " ...	60	25	85	Length of residence not stated...	1,765	531	2,296
" 9 " ...	49	20	69				
" 10 to 14 years...	178	76	254				
" 15 to 19 " ...	194	90	284				
" 20 to 24 " ...	335	117	452				
				Total ...	27,609	20,420	48,029

12. **Birthplaces of Persons who Died in 1917.**—In the following table are shewn the birthplaces of persons whose deaths were registered in 1917:—

### BIRTHPLACES OF PERSONS WHO DIED IN 1917.

#### COMMONWEALTH.

Birthplace.	Males.	Females.	Total.	Birthplace	Males	Females.	Total.
<b>AUSTRALASIA—</b>				<b>ASIA—continued.</b>			
Commonwealth of Australia—				Philippine Islands	6	...	6
New South Wales ...	6,137	5,065	11,202	Syria ...	9	6	15
Victoria ...	4,814	3,921	8,735	Other Asiatic Countries ...	3	...	3
Queensland ...	1,728	1,375	3,103				
South Australia ...	1,628	1,363	2,991	<b>AFRICA—</b>			
Western Australia...	527	427	954	Union of Sth. Africa	20	17	37
Tasmania ...	969	846	1,815	Mauritius ...	7	1	8
Northern Territory	4	9	13	Other African Brit. Possessions ...	...	3	3
Federal Territory ...	2	...	2	Egypt ...	1	1	2
New Zealand ...	148	85	233	Other African Countries ...	1	...	1
<b>EUROPE—</b>				<b>AMERICA—</b>			
England ...	5,143	3,295	8,438	Canada ...	54	19	73
Wales ...	155	93	248	Jamaica...	8	3	11
Scotland ...	1,396	968	2,364	Newfoundland ...	5	...	5
Ireland ...	2,385	2,220	4,605	Other American Brit. Possessions	10	11	21
Isle of Man ...	8	5	13	Argentine Republic	1	...	1
Other European Brit'h Possessions	25	11	36	Brazil ...	2	1	3
Austria-Hungary ...	36	4	40	Chile ...	1	1	2
Belgium ...	12	2	14	Mexico ...	4	...	4
Denmark ...	110	39	149	Peru ...	1	...	1
France ...	56	30	86	United States of America ...	77	20	97
Germany ...	501	260	761	Other American Countries ...	8	2	10
Greece ...	22	3	25				
Italy ...	78	13	91	<b>POLYNESIA—</b>			
Netherlands ...	15	4	19	Fiji ...	1	6	7
Norway ...	49	8	57	Papua ...	3	...	3
Portugal...	7	...	7	Other Polynesian Brit. Possessions	8	...	8
Russia ...	106	21	127	New Caledonia ...	2	...	2
Spain ...	17	1	18	New Hebrides ...	7	...	7
Sweden ...	105	6	111	Samoa ...	1	...	1
Switzerland ...	51	9	60	Other Polynesian Islands ...	5	...	5
Other European Countries ...	8	2	10	South Sea Islands (so described) ...	28	5	33
<b>ASIA—</b>				At Sea ...	57	43	100
British India ...	68	37	105	Not stated...	595	152	747
Ceylon ...	9	1	10				
Straits Settlements	5	1	6	<b>Total Deaths</b> ...	<b>27,609</b>	<b>20,420</b>	<b>48,029</b>
Other Asiatic British Possessions ...	2	1	3				
Afghanistan ...	3	...	3				
China ...	279	2	281				
Japan ...	66	...	66				
Java ...	10	2	12				

13. **Occupations of Male Persons who Died in 1917.**—Information as to the occupations of the 27,609 males who died in the Commonwealth in 1917, is contained in the following statement :—

**OCCUPATIONS OF MALES WHO DIED IN 1917.**

**COMMONWEALTH.**

Occupation.	No. of Deaths.	Occupation.	No. of Deaths.
<b>CLASS I.—PROFESSIONAL.</b>			
General Government ... ..	125	Vegetable food ... ..	82
Local Government ... ..	37	Groceries and stimulants ... ..	139
Defence ... ..	271	Living animals... ..	32
Law and order ... ..	182	Leather, raw material ... ..	4
Religion ... ..	97	Wool and tallow ... ..	13
Charity ... ..	5	Hay, corn, etc. ... ..	37
Health ... ..	163	Other vegetable matter ... ..	6
Literature ... ..	35	Wood and coal... ..	25
Science ... ..	15	Stone, clay, glass ... ..	6
Civil and mechanical engineering, architecture and surveying ... ..	79	Ironmongery ... ..	18
Education ... ..	114	Merchants ... ..	89
Fine arts ... ..	36	Shopkeepers and assistants ... ..	218
Music ... ..	42	Dealers and hawkers ... ..	117
Amusements ... ..	115	Agents and brokers ... ..	117
		Clerks, bookkeepers, etc. ... ..	574
		Commercial travellers and salesmen	152
		Others engaged in commercial pur- suits ... ..	114
Total Professional ... ..	1,316	Speculators on chance events ... ..	14
<b>CLASS II.—DOMESTIC.</b>		Total Commercial ... ..	2,417
Hotelkeepers and assistants ... ..	246		
Others engaged in providing board and lodging... ..	112	<b>CLASS IV.—TRANSPORT AND COMMUNICATION.</b>	
House servants ... ..	91	Railway traffic ... ..	431
Coachmen and grooms ... ..	66	Tramway traffic ... ..	42
Hairdressers ... ..	53	Road traffic ... ..	518
Laundrymen ... ..	17	Sea and river traffic ... ..	506
Others engaged in domestic occu- pations ... ..	152	Postal service ... ..	79
Total Domestic ... ..	737	Telegraph and telephone service ... ..	43
		Messengers, etc. ... ..	8
<b>CLASS III.—COMMERCIAL.</b>		Total Transport & Communication	1,627
Banking and finance ... ..	92		
Insurance and valuation ... ..	72	<b>CLASS V.—INDUSTRIAL.</b>	
Land and household property ... ..	35	Books and publications ... ..	130
Property rights, n.e.i. ... ..	1	Musical instruments ... ..	11
Books, publications and advertising	42	Prints, pictures, and art materials	5
Musical instruments ... ..	2	Ornaments and small wares ... ..	14
Prints, pictures and art materials... ..	2	Sports and games ... ..	3
Ornaments, small wares ... ..	1	Designs, medals, type, and dies ... ..	7
Surgical instruments ... ..	1	Watches and clocks ... ..	32
Arms and Ammunition ... ..	1	Surgical instruments ... ..	2
Machines, tools, and implements ... ..	5	Arms and ammunition ... ..	3
Carriages and vehicles ... ..	2	Engines, machines, tools, etc. ... ..	129
Harness and saddlery ... ..	1	Carriages and vehicles ... ..	116
Ships and boats ... ..	2	Harness, saddlery, and leatherware	84
Building materials ... ..	14	Ships, boats, and equipment ... ..	68
Furniture ... ..	5	Furniture ... ..	94
Paper and stationery ... ..	9	Building material ... ..	64
Textile fabrics ... ..	106	Chemicals and by-products ... ..	6
Dress ... ..	16		
Fibrous Materials ... ..	2		
Animal food ... ..	249		



## OCCUPATIONS OF MALES WHO DIED IN 1917—Continued.

Occupation.	No. of Deaths.	Occupation.	No. of Deaths.
<b>INDUSTRIAL—Continued.</b>		<b>CLASS VI.—AGRICULTURAL, PASTORAL, MINING PURSUITS, ETC.</b>	
Textile fabrics ... ..	24	Agricultural ... ..	3,024
Dress ... ..	373	Pastoral ... ..	762
Fibrous materials ... ..	17	Dairy farming ... ..	74
Animal food ... ..	18	Bees, fisheries and wild animals ...	136
Vegetable food ... ..	173	Forestry ... ..	90
Groceries and stimulants ... ..	56	Water conservation and supply ...	17
Animal matter ... ..	27	Mines and quarries ... ..	1,508
Workers in wood not elsewhere classed ... ..	22		
Vegetable produce for fodder ... ..	2	Total Primary Producers ... ..	5,611
Stone, clay, glass ... ..	69		
Jewellery and precious stones ... ..	30	<b>CLASS VII.—INDEFINITE.</b>	
Metals, other than gold and silver ...	380	Independent means, having no specific occupation ... ..	326
Gas, electric lighting, etc. ... ..	55	Occupation unspecified ... ..	775
<b>Buildings—</b>			
Builders ... ..	114	Total Indefinite ... ..	1,101
Stonemasons ... ..	85		
Bricklayers ... ..	75	<b>CLASS VIII.—DEPENDENTS.</b>	
Slaters ... ..	3	Dependent relatives (including persons under 20 years of age with no specified occupation) ...	6,757
Carpenters ... ..	440	Supported by voluntary and State contributions ... ..	439
Plasterers ... ..	43		
Painters and glaziers ... ..	187	Total Dependents ... ..	7,196
Plumbers ... ..	64		
Signwriters ... ..	6		
Others ... ..	4		
Roads, railways, and earthworks ...	61		
Disposal of the dead ... ..	16		
Disposal of refuse ... ..	11		
<b>Other industrial workers—</b>			
Manufacturers ... ..	37		
Engineers, firemen ... ..	408		
Contractors ... ..	170		
Labourers, undefined ... ..	3,830		
Others ... ..	36		
Total Industrial ... ..	7,604	Total Male Deaths ... ..	27,609

14. **Index of Mortality.**—The death rates, those for age-groups on page 196 excepted, so far shewn are crude rates, *i.e.*, they simply shew the number of deaths per thousand of mean population, without taking the age constitution of that population into consideration. It is, however, a well-known fact that the death rate and age constitution of a people are intimately related; thus, other conditions being equal, the death rate of a country will be lower if it contain a large percentage of young people (not infants). In order to have a comparison of the mortality of various countries on a uniform basis, so far as age constitution is concerned, the International Statistical Institute in its 1895 session recommended the universal adoption of the population of Sweden in five age-groups, as ascertained at the Census of 1890, as the standard population by which this "Index of Mortality," as distinguished from the crude death rate, should be ascertained. The calculation for 1917 is shewn below for each of the States and Territories and for the Commonwealth, the distribution of the mean population of 1917 into age-groups being in accordance with the distribution as found at the Census of 1911:—

## INDEX OF MORTALITY, 1917.—(STATES AND COMMONWEALTH).

Age-Group.	Mean Population, 1917, distributed according to Results of Census of 1911.	Number of Deaths, 1917.	No. of Deaths per 1000 of Mean Population, 1917, in each Age-Group.	Age Distribution per 1000 of Standard Population.	Index of Mortality.
<b>NEW SOUTH WALES.</b>					
Under 1 year ... ..	51,406	2,988	58.13	25.5	1.48
1 year and under 20 ... ..	736,157	1,996	2.71	398.0	1.08
20 years " 40 ... ..	526,324	2,386	3.81	269.6	1.03
40 " 60 ... ..	338,156	3,582	10.59	192.3	2.04
60 " and upwards ... ..	117,380	6,999	59.54	114.6	6.82
Total ... ..	1,869,423	17,941	9.60	1,000.0	12.45
<b>VICTORIA.</b>					
Under 1 year ... ..	33,252	1,877	56.45	25.5	1.44
1 year and under 20 ... ..	540,990	1,339	2.48	398.0	0.99
20 years " 40 ... ..	444,887	1,702	3.83	269.6	1.03
40 " 60 ... ..	283,253	3,139	11.08	192.3	2.13
60 " and upwards ... ..	103,084	6,498	63.04	114.6	7.22
Total ... ..	1,405,466	14,555	10.36	1,000.0	12.81
<b>QUEENSLAND.</b>					
Under 1 year ... ..	18,396	1,068	58.06	25.5	1.48
1 year and under 20 ... ..	278,696	874	3.14	398.0	1.25
20 years " 40 ... ..	222,897	959	4.30	269.6	1.16
40 " 60 ... ..	120,853	1,416	11.72	192.3	2.25
60 " and upwards ... ..	39,471	2,238	56.70	114.6	6.50
Total ... ..	680,313	6,555	9.64	1,000.0	12.64
<b>SOUTH AUSTRALIA.</b>					
Under 1 year ... ..	11,130	601	54.00	25.5	1.38
1 year and under 20 ... ..	169,238	457	2.70	398.0	1.07
20 years " 40 ... ..	142,404	618	4.34	269.6	1.17
40 " 60 ... ..	79,010	827	10.47	192.3	2.01
60 " and upwards ... ..	30,406	1,862	61.24	114.6	7.09
Total ... ..	432,188	4,365	10.10	1,000.0	12.65
<b>WESTERN AUSTRALIA.</b>					
Under 1 year ... ..	8,250	450	54.55	25.5	1.39
1 year and under 20 ... ..	113,013	298	2.64	398.0	1.05
20 years " 40 ... ..	113,309	479	4.23	269.6	1.14
40 " 60 ... ..	61,628	802	13.01	192.3	2.50
60 " and upwards ... ..	12,379	740	59.78	114.6	6.85
Total ... ..	308,579	2,769	8.97	1,000.0	12.93
<b>TASMANIA.</b>					
Under 1 year ... ..	5,592	281	50.25	25.5	1.28
1 year and under 20 ... ..	84,697	211	2.49	398.0	0.99
20 years " 40 ... ..	60,844	220	3.62	269.6	0.98
40 " 60 ... ..	35,359	321	9.08	192.3	1.75
60 " and upwards ... ..	12,432	735	59.12	114.6	6.78
Total ... ..	198,924	1,768	8.89	1,000.0	11.78
<b>NORTHERN TERRITORY.</b>					
Under 1 year ... ..	44	3	68.18	25.5	1.74
1 year and under 20 ... ..	912	3	3.29	398.0	1.31
20 years " 40 ... ..	1,322	15	11.35	269.6	3.06
40 " 60 ... ..	2,229	20	8.97	192.3	1.72
60 " and upwards ... ..	451	22	48.78	114.6	5.59
Total ... ..	4,958	63	12.71	1,000.0	13.42
<b>FEDERAL TERRITORY.</b>					
Under 1 year ... ..	57	2	35.09	25.5	0.89
1 year and under 20 ... ..	1,022	...	...	398.0	...
20 years " 40 ... ..	766	...	...	269.6	...
40 " 60 ... ..	464	5	10.78	192.3	2.07
60 " and upwards ... ..	184	6	32.61	114.6	3.74
Total ... ..	2,493	13	5.21	1,000.0	6.70

## INDEX OF MORTALITY, 1917.—(STATES AND COMMONWEALTH)—Continued.

Age-Group.	Mean Population, 1917, distributed according to Results of Census of 1911.	Number of Deaths, 1917.	No. of Deaths per 1000 of Mean Population, 1917, in each Age-Group.	Age Distribution per 1000 of Standard Population.	Index of Mortality.
<b>COMMONWEALTH.</b>					
Under 1 year ... ..	128,127	7,270	56.74	25.5	1.45
1 year and under 20 ... ..	1,924,725	5,178	2.69	398.0	1.07
20 years " 40 ... ..	1,612,753	6,379	3.96	269.6	1.07
40 " 60 ... ..	920,952	10,112	10.98	192.3	2.11
60 " and upwards ... ..	315,787	19,090	60.45	114.6	6.93
Total ... ..	4,902,344	48,029	9.80	1,000.0	12.63

NOTE.—The small number of persons whose ages were not ascertained at the 1911 Census have been proportionately distributed among the various age-groups, and the same plan has been followed in regard to the 56 persons who died in 1917, and whose ages were not stated in the certificates of death.

It will be seen that among the States in 1917, Western Australia had the highest index and the second lowest crude rate, while Tasmania had the lowest index and crude rate. Victoria experienced the highest crude death rate and the second highest index. The range of the indexes was below that of the crude rates, the latter varying from 8.89 per thousand in Tasmania to 10.36 per thousand in Victoria, a range of 1.47 per thousand, while the index varied from 11.78 per thousand in Tasmania to 12.93 per thousand in Western Australia, a range of 1.15 per thousand.

For purposes of comparison with previous years the index of mortality is shewn in the following table for each of the eleven years 1907-1917 :—

## INDEX OF MORTALITY 1907-1917 (STATES AND TERRITORIES).

Year.	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	Northern Territory.	Federal Territory.	Com'-wealth.
1907 ... ..	13.66	14.55	13.52	13.12	14.94	14.10	...	...	13.97
1908 ... ..	13.13	15.58	13.37	12.89	14.81	14.46	...	...	14.10
1909 ... ..	12.61	14.11	12.57	12.27	13.91	12.32	...	...	13.15
1910 ... ..	12.48	14.15	12.60	12.50	13.48	13.62	...	...	13.17
1911 ... ..	13.23	14.23	13.57	12.18	13.47	12.97	(a) 17.91	(b) 6.53	13.55
1912 ... ..	13.63	14.94	13.91	12.76	14.55	13.69	17.23	6.36	14.08
1913 ... ..	13.61	13.50	13.25	13.25	12.58	13.54	20.17	6.13	13.47
1914 ... ..	12.72	14.11	12.70	13.03	12.56	12.11	20.35	5.17	13.18
1915 ... ..	13.24	13.54	14.30	13.09	12.79	13.04	21.62	7.15	13.47
1916 ... ..	13.48	14.28	14.37	14.45	14.15	13.43	22.63	4.05	13.99
1917 ... ..	12.45	12.81	12.64	12.65	12.93	11.78	13.42	6.70	12.63

(a) Included in South Australia prior to 1911. (b) Part of New South Wales prior to 1911.

A comparison of the above figures with the crude death rates given on a previous page shews that while the crude rate was highest in Victoria every year, the index was highest in Victoria seven times, and in New South Wales, Queensland, South Australia, and Western Australia once each in the same period. South Australia had the lowest index five times, Western Australia three times, Tasmania twice, and New South Wales once, while the crude rate was lowest five times in South Australia, four times in Western Australia, and twice in Tasmania. The high index in Victoria is due to the large proportion of persons over 60 years of age, and in Western Australia to the heavy mortality in the early period of life.

15. **Monthly Variations in Death Rates.**—(i.) *General Death Rates.* The annual death rates, corresponding to the number of deaths registered in each equalised month, have been calculated for the six years 1907-1912, and a series of diagrams shewing the results for each State and the Commonwealth as a whole appears on page 222 of this issue, distinguishing the rates for males, females, and persons. The curves shewing the male and female rate exhibit in each State a fairly parallel course,

irregularities being, however, more strongly marked in the case of the male curve. The minimum rates in New South Wales and Queensland fall within the autumn months, from March to May, while in Victoria, South Australia, Western Australia, and Tasmania they fall in the spring months, October and November. In no case is there, however, a very great difference between the rates in spring and in autumn, the figures for the Commonwealth being 10.19 per thousand in March, and 10.34 per thousand in October. The maximum rates in New South Wales, Victoria, and Tasmania are experienced in August, and in Queensland in September, with the rates for December and January as secondary maxima. In South Australia the maximum rate of 11.33 per thousand falls in January, the rate for August standing next with 10.80 per thousand. In Western Australia the maximum rate is found in May.

(ii.) *Infantile Death Rates.* A similar series of diagrams, shewing the monthly variations in the infantile death rates, appears on page 223. With the exception of Western Australia, where the maximum occurs in May, the maxima are found in the summer months in every State. The rates gradually decrease from January to March, shewing in several States a slight increase in April, with a further diminution until July. In July and August the rates rise to some extent, to fall again until October or November. From that time a rapid rise takes place, until the maximum is reached in December or January. Tasmania, where the seasons are rather later than in the continental States, shews two distinct minima in May and November, with a summer maximum in February, and a fairly high rate in September. In Western Australia the rates are moderately high in December and January, and drop until March, to rise rapidly in April and May when the maximum is reached. From May to September there is a gradual decrease, with a quick rise from the latter month until December.

16. *Causes of Death.*—(i.) Information regarding the changes in the classification of causes of death will be found in previous editions of this Year Book (*e.g.*, Year Book No. 5, pages 222 and 223). The statement will suffice, therefore, that the classification adopted by the Commonwealth Bureau of Census and Statistics is that of the International Institute of Statistics, as amended by the Committee of Revision which met in 1909. The detailed classification groups causes of death under 189 different headings in fourteen categories, as follows:—

- |   |   |
|---|---|
| i. General Diseases.  | viii. Diseases of the Skin and Cellular Tissue. |
| ii. Diseases of the Nervous System and Organs of Special Sense. | ix. Diseases of the Organs of Locomotion.       |
| iii. Diseases of the Circulatory System.                        | x. Malformations.                               |
| iv. Diseases of the Respiratory System.                         | xi. Infancy.                                    |
| v. Diseases of the Digestive System.                            | xii. Old Age.                                   |
| vi. Diseases of the Genito-urinary System and Adnexa.           | xiii. Violence.                                 |
| vii. Puerperal Condition.                                       | xiv. Ill-defined Diseases.                      |

(ii.) *Compilation of Vital Statistics for 1907 and Subsequent Years in Commonwealth Bureau.* The vital statistics of the Commonwealth from the year 1907 onward have been tabulated according to this classification in the Commonwealth Bureau, and the system is being employed in all the State offices in the preparation of their monthly and quarterly bulletins of vital statistics.

(iii.) *Classification of Causes of Death, 1907 to 1917, according to Abridged International Classification.* An abridged classification, which enumerates thirty-eight diseases and groups of diseases according to the revised classification, is in use in many European and American States, while the Commonwealth Statistics have been compiled on the detailed classification of 189 headings. A table has been compiled shewing the causes of death according to the abridged classification, so that the results may be compared with those of countries which use the abridged index.

The compilations for the years 1907 to 1917 will be found in full in "Bulletins Nos. 8, 14, 20, 25, 29, 30, 31, 32, 33, 34, and 35 of Population and Vital Statistics"; here it will suffice to give the abridged classification under thirty-eight headings for the year 1917:—

## CAUSES OF DEATH—COMMONWEALTH, 1917.

## (a) MALES.

Cause.	N.S.W.	Vic.	Q'land.	S.Aust.	W.Aus.	Tas.	Nor. Ter.	Fed. Ter.	C'with.
1 Typhoid Fever ...	65	36	36	17	14	10	...	...	178
2 Typhus ...	...	...	...	...	...	...	...	...	...
3 Malaria ...	5	...	23	...	4	...	1	...	33
4 Small-pox ...	...	...	...	...	...	...	...	...	...
5 Measles ...	12	13	5	...	8	1	...	...	39
6 Scarlet Fever ...	12	13	1	1	...	...	...	...	27
7 Whooping Cough ...	72	29	13	12	13	3	...	...	142
8 Diphtheria and Croup ...	121	70	40	50	19	21	...	...	321
9 Influenza ...	30	37	12	7	7	...	...	...	93
10 Asiatic Cholera ...	...	...	...	...	...	...	...	...	...
11 Cholera Nostras ...	...	1	...	...	...	...	...	...	1
12 Other Epidemic Diseases ...	30	16	25	5	8	2	...	...	86
13 Tuberculosis of the Lungs ...	625	493	208	167	160	50	4	...	1,707
14 Tuberculosis of the Meninges ...	32	52	5	16	5	5	...	...	115
15 Other forms of Tuberculosis ...	48	56	9	23	14	10	1	...	161
16 Cancer and other Malignant Tumours ...	772	614	290	201	108	74	2	1	2,062
17 Simple Meningitis ...	151	106	73	41	33	12	...	...	416
18 Congestion, Hæmorrhage and Softening of Brain ...	424	308	163	138	68	49	...	2	1,152
19 Organic Diseases of the Heart ...	807	619	299	211	136	90	4	...	2,166
20 Acute Bronchitis ...	97	30	25	21	10	6	...	...	189
21 Chronic Bronchitis ...	184	165	68	44	13	12	1	...	487
22 Pneumonia ...	485	380	114	91	79	34	2	...	1,185
23 Other Diseases of the Respiratory System (Tuberculosis excepted) ...	388	459	193	54	74	43	2	...	1,213
24 Diseases of the Stomach (Cancer excepted) ...	76	63	35	14	18	9	...	...	215
25 Diarrhœa & Enteritis (children under 2 years only) ...	423	219	185	72	58	28	...	...	985
26 Appendicitis and Typhlitis ...	73	45	25	18	18	6	...	...	185
27 Hernia, Intestinal Obstructions ...	90	84	32	15	15	9	...	...	245
28 Cirrhosis of the Liver ...	84	56	39	17	16	1	1	...	214
29 Nephritis and Bright's Disease ...	502	424	208	118	71	20	...	...	1,343
30 Non-cancerous Tumours and other Diseases of Female Genital Organs ...	...	...	...	...	...	...	...	...	...
31 Puerperal Septicæmia (Puerperal Fever, Puerperal Peritonitis, Puerperal Phlebitis) ...	...	...	...	...	...	...	...	...	...
32 Other Puerperal Accidents of Pregnancy and Confinement ...	...	...	...	...	...	...	...	...	...
33 Congenital Debility and Malformations ...	812	508	274	180	111	84	2	1	1,972
34 Senile Debility ...	1,027	912	239	217	132	95	11	...	2,633
35 Violence ...	785	466	378	187	186	59	8	...	2,069
36 Suicide ...	133	98	88	32	45	8	3	1	408
37 Other Diseases ...	1,923	1,465	881	383	323	163	7	2	5,147
38 Unspecified or Ill-defined Diseases ...	157	115	41	46	36	22	3	...	420
Total—Males ...	10,445	7,952	4,027	2,398	1,802	926	52	7	27,609

## CAUSES OF DEATH—COMMONWEALTH, 1917.

## (b) FEMALES.

Cause.	N.S.W.	Vic.	Q'land.	S. A.	W.A.	Tas.	Nor. Ter.	Fed. Ter.	C'with.
1 Typhoid Fever ...	31	26	15	12	15	7	...	...	106
2 Typhus ...	...	...	...	...	...	...	...	...	...
3 Malaria ...	1	...	14	...	...	...	1	...	16
4 Small-pox ...	...	...	...	...	...	...	...	...	...
5 Measles ...	14	3	11	...	5	...	...	...	33
6 Scarlet Fever ...	15	20	2	...	...	...	...	...	37
7 Whooping Cough...	70	38	11	12	7	2	...	...	140
8 Diphtheria and Croup	128	86	42	39	13	17	...	...	325
9 Influenza ...	29	23	13	4	3	3	...	...	75
10 Asiatic Cholera ...	...	...	...	...	...	...	...	...	...
11 Cholera Nostras ...	...	...	...	...	...	...	...	...	...
12 Other Epidemic Diseases ...	21	9	8	8	8	3	1	...	58
13 Tuberculosis of the Lungs...	386	415	104	174	54	43	...	...	1,176
14 Tuberculosis of the Meninges	24	40	5	12	2	8	...	...	91
15 Other forms of Tuberculosis	26	55	10	17	4	2	...	...	114
16 Cancer and other Malignant Tumours ...	698	692	210	180	96	84	...	...	1,960
17 Simple Meningitis ...	104	70	55	18	17	10	...	...	274
18 Congestion, Hæmorrhage, & Softening of the Brain ...	365	376	127	109	40	44	...	1	1,062
19 Organic Diseases of the Heart	578	531	196	218	80	83	...	...	1,686
20 Acute Bronchitis ...	76	12	19	17	5	1	...	2	132
21 Chronic Bronchitis ...	110	143	35	37	3	14	...	...	342
22 Pneumonia ...	285	246	63	66	21	30	...	...	711
23 Other Diseases of the Res- piratory System (Tuber- culosis excepted) ...	287	250	84	47	27	33	...	...	728
24 Diseases of the Stomach (Cancer excepted) ...	68	54	27	14	8	8	...	...	179
25 Diarrhoea and Enteritis (children under 2 yrs only)	312	165	126	62	41	28	...	...	734
26 Appendicitis and Typhlitis...	54	40	15	9	12	6	...	...	136
27 Hernia, Intestinal Obstruc- tions... ..	76	57	24	26	13	8	...	...	204
28 Cirrhosis of the Liver ...	44	35	22	10	4	6	...	...	121
29 Nephritis & Bright's Disease	284	290	147	77	46	15	...	1	860
30 Non-cancerous Tumours and other Diseases of the Female Genital Organs	61	39	25	5	14	3	1	...	148
31 Puerperal Septicæmia (Puer- peral Fever, Puerperal Peritonitis, Puerperal Phlebitis) ...	118	54	32	14	19	13	...	...	250
32 Other Puerperal Accidents of Pregnancy & Confinement	207	106	93	34	23	17	2	...	482
33 Congenital Debility and Mal- formations ...	593	366	216	124	97	55	...	...	1,451
34 Senile Debility ...	747	843	147	227	67	105	...	1	2,137
35 Violence... ..	232	157	86	59	39	14	...	...	587
36 Suicide ...	39	30	15	6	3	1	...	...	94
37 Other Diseases ...	1,329	1,243	509	306	171	160	5	1	3,724
38 Unspecified or Ill-defined Diseases ...	84	89	20	24	10	19	1	...	247
Total—Females ...	7,496	6,603	2,528	1,967	967	842	11	6	20,420

## CAUSES OF DEATH—COMMONWEALTH, 1917.

(c) TOTAL, MALES AND FEMALES.

Cause.	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	Nor. Ter.	Fed. Ter.	Com- wealth
1 Typhoid Fever ...	96	62	51	29	29	17	...	...	284
2 Typhus ...	...	...	...	...	...	...	...	...	...
3 Malaria ...	6	...	37	...	4	...	2	...	49
4 Small-pox ...	...	...	...	...	...	...	...	...	...
5 Measles ...	26	16	16	...	13	1	...	...	72
6 Scarlet Fever ...	27	33	3	1	...	...	...	...	64
7 Whooping Cough ...	142	67	24	24	20	5	...	...	282
8 Diphtheria and Croup ...	249	156	82	89	32	38	...	...	646
9 Influenza ...	59	60	25	11	10	3	...	...	168
10 Asiatic Cholera ...	...	...	...	...	...	...	...	...	...
11 Cholera Nostras ...	...	1	...	...	...	...	...	...	1
12 Other Epidemic Diseases ...	51	25	33	13	16	5	1	...	144
13 Tuberculosis of the Lungs ...	1,011	908	312	341	214	93	4	...	2,883
14 Tuberculosis of the Meninges ...	56	92	10	28	7	13	...	...	206
15 Other forms of Tuberculosis ...	74	111	19	40	18	12	1	...	275
16 Cancer and other Malignant Tumours ...	1,470	1,306	500	381	204	158	2	1	4,022
17 Simple Meningitis ...	255	176	128	59	50	22	...	...	690
18 Congestion, Hæmorrhage, & Softening of the Brain ...	789	684	290	247	108	93	...	3	2,214
19 Organic Diseases of Heart ...	1,385	1,150	495	429	216	173	4	...	3,852
20 Acute Bronchitis ...	173	42	44	38	15	7	...	2	321
21 Chronic Bronchitis ...	294	308	103	81	16	26	1	...	829
22 Pneumonia ...	770	626	177	157	100	64	2	...	1,896
23 Other Diseases of the Re- spiratory System (Phthisis excepted) ...	675	709	277	101	101	76	2	...	1,941
24 Diseases of the Stomach (Cancer excepted) ...	144	117	62	28	26	17	...	...	394
25 Diarrhœa and Enteritis (children under 2 yrs. only) ...	735	384	311	134	99	56	...	...	1,719
26 Appendicitis and Typhlitis ...	127	85	40	27	30	12	...	...	321
27 Hernia, Intestinal Obstruc- tions ...	166	141	56	41	28	17	...	...	449
28 Cirrhosis of the Liver ...	128	91	61	27	20	7	1	...	335
29 Nephritis & Bright's Disease ...	786	714	355	195	117	35	...	1	2,203
30 Non-cancerous Tumours & other Diseases of the Female Genital Organs ...	61	39	25	5	14	3	1	...	148
31 Puerperal Septicæmia (Puer- peral Fever, Puerperal Peritonitis, Puerperal Phlebitis) ...	118	54	32	14	19	13	...	...	250
32 Other Puerperal Accidents of Pregnancy and Confine- ment ...	207	106	93	34	23	17	2	...	482
33 Congenital Debility and Malformations ...	1,405	874	490	304	208	139	2	1	3,423
34 Senile Debility ...	1,774	1,755	386	444	199	200	11	1	4,770
35 Violence ...	1,017	623	464	246	225	73	8	...	2,656
36 Suicide ...	172	128	103	38	48	9	3	1	502
37 Other Diseases ...	3,252	2,708	1,390	689	494	323	12	3	8,871
38 Unspecified or Ill-defined Diseases ...	241	204	61	70	46	41	4	...	667
Total—Males and Females	17,941	14,555	6,555	4,365	2,769	1,768	63	13	48,029

(d) The classification for the years 1910 to 1916 is shown for the Commonwealth in the following table, and for purposes of comparison the figures for the year 1917 have

been repeated from the preceding table. Male and female deaths for 1905, 1906, and 1907 are shewn separately on page 237 of the second issue, those for 1908 on pages 211 and 212 of the third issue, for 1909 on pages 200 and 201 of the fourth issue, for 1910 on pages 202 and 203 of the fifth issue, for 1911 on pages 224 and 225 of the sixth issue, for 1912 on pages 182 and 183 of the seventh issue, for 1913 on pages 182 and 183 of the eighth issue, for 1914 on pages 188 and 189 of the ninth issue, and for 1915 on pages 198 and 199 of the tenth issue of this Year Book, while the figures for 1917 are given on pages 204 and 205 of this issue.

## CAUSES OF DEATH—COMMONWEALTH, 1910 to 1917.

## MALES AND FEMALES.

Cause.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.
1 Typhoid Fever ...	648	488	619	576	604	561	529	284
2 Typhus ...	...	...	...	...	...	...	...	...
3 Malaria ...	55	19	17	24	22	30	50	49
4 Small-pox ...	4	1	...	1	3	1	1	...
5 Measles ...	124	206	519	186	155	439	211	72
6 Scarlet Fever ...	58	24	41	39	29	104	134	64
7 Whooping Cough...	476	291	301	560	320	185	426	282
8 Diphtheria and Croup ...	555	696	754	808	716	703	893	646
9 Influenza ...	324	447	386	341	331	389	278	168
10 Asiatic Cholera ...	...	...	...	...	...	...	...	...
11 Cholera Nostras ...	1	6	5	3	2	2	4	1
12 Other Epidemic Diseases ...	184	295	224	185	176	205	249	144
13 Tuberculosis of the Lungs...	3,059	3,164	3,146	3,252	3,111	3,064	3,198	2,883
14 Tuberculosis of the Meninges	215	269	215	252	207	213	215	206
15 Other forms of Tuberculosis	343	303	327	296	256	278	310	275
16 Cancer & other Mal. Tumours	3,205	3,321	3,537	3,603	3,675	3,702	3,979	4,022
17 Simple Meningitis ...	567	636	749	753	812	1,209	1,201	690
18 Congestion, Hæmorrhage, and Softening of the Brain	1,704	2,178	2,176	2,281	2,204	2,118	2,230	2,214
19 Organic Diseases of the Heart	4,378	4,896	5,267	4,989	4,836	4,370	4,509	3,852
20 Acute Bronchitis ...	420	515	460	397	389	489	512	321
21 Chronic Bronchitis ...	859	1,046	1,053	991	959	913	1,057	829
22 Pneumonia ...	1,612	1,869	2,107	1,966	1,992	2,225	2,220	1,896
23 Other Diseases of the Respir. System (Tuberculosis ex.)	1,544	1,872	1,863	1,812	1,866	2,212	2,243	1,941
24 Diseases of the Stomach (Cancer excepted) ...	297	370	457	447	368	351	263	394
25 Diarrhœa & Enteritis (Children under two years only)	3,145	2,462	3,248	3,176	3,506	2,815	3,018	1,719
26 Appendicitis and Typhlitis	315	320	347	364	374	356	321	321
27 Hernia, Intest. Obstructions	398	439	463	486	460	488	501	449
28 Cirrhosis of the Liver ...	368	385	426	365	380	376	309	335
29 Nephritis & Bright's Disease	1,771	1,951	2,188	2,211	2,127	2,274	2,329	2,203
30 Non-cancerous Tumours and other Diseases of the Female Genital Organs ...	149	120	145	153	138	139	153	148
31 Puerperal Septicæmia (Puer. Fever, Periton'ts, Phleb'ts)	218	209	231	235	215	182	282	250
32 Other Puerperal Accidents of Pregnancy & Confinement	373	406	413	428	419	394	411	482
33 Congenital Debility, etc. ...	3,221	3,142	3,611	3,823	3,860	3,993	3,826	3,423
34 Senile Debility ...	3,353	3,849	4,124	4,116	4,130	4,686	4,980	4,770
35 Violence ...	2,738	3,018	3,237	3,168	3,121	2,851	2,712	2,656
36 Suicide ...	516	544	631	647	643	658	577	502
37 Other Diseases ...	7,795	7,652	8,300	8,241	8,670	9,090	9,433	8,871
38 Unspec. or Ill-defined Dis's.	598	460	590	614	644	717	633	667
Total ...	45,590	47,869	52,177	51,789	51,720	52,782	54,197	48,029



**17. Certification of Deaths.**—Information was obtained in 1917 as to the persons by whom the 48,029 deaths which occurred in the Commonwealth were certified. The result of the enquiry shews that approximately 89.3 per cent. (in 1910, 88.1 per cent.; in 1911, 88.2 per cent.; in 1912, 88.1 per cent.; in 1913, 88.7 per cent.; in 1914, 88.8 per cent.; in 1915, 89.3 per cent.; and in 1916, 89.5 per cent.) were certified by medical practitioners, and 10.3 per cent. (in 1910, 11.1 per cent.; in 1911, 10.9 per cent.; in 1912, 10.9 per cent.; in 1913, 10.8 per cent.; in 1914, 10.7 per cent.; in 1915, 10.2 per cent., and in 1916, 9.9 per cent.) by coroners after inquests or magisterial enquiries, while in 0.4 per cent. (in 1910, 0.8 per cent.; in 1911, 0.9 per cent.; in 1912, 1.0 per cent.; in 1913, 0.5 per cent.; in 1914, 0.5 per cent.; in 1915, 0.5 per cent., and in 1916, 0.6 per cent.) of the cases there was either no certificate given or particulars were not forthcoming. The results are shewn in detail in Bulletin No. 35; a short summary will therefore suffice here:—

#### CERTIFICATION OF DEATHS, COMMONWEALTH, 1917.

Death Certified by—	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N.T.	Fed. Ter.	C'with.
Medical practitioner	15,928	12,789	6,081	4,011	2,414	1,629	27	8	42,887
Coroner ...	2,007	1,766	350	342	326	131	36	5	4,963
Not certified or not stated ...	6	...	124	12	29	8	...	...	179
Total Deaths ...	17,941	14,555	6,555	4,365	2,769	1,768	63	13	48,029

Of the cases certified by coroners, violent deaths numbered 2443, senile decay 421, organic heart disease 342, ill-defined causes 286, congenital debility 176, cerebral hæmorrhage and apoplexy 115, pneumonia 102, Bright's disease 76, diarrhoea and enteritis 70, pulmonary tuberculosis 70, diseases of arteries, aneurisms, etc. 64, broncho-pneumonia 59, acute and chronic alcoholism 55, puerperal diseases, 51, infantile convulsions 39; a total of 4369 out of 4963.

Of uncertified causes of death, violent deaths numbered 38, congenital debility 32, senile debility 28, ill-defined causes 20, infantile convulsions 8, pulmonary tuberculosis 6; a total of 132 out of 179.

**18. Deaths from Special Causes.**—The table on p. 207 furnishes comparisons for the last eight years only, and comparisons will, therefore, generally be restricted to that period.

(i.) *Typhoid Fever.* Deaths from typhoid fever were more numerous in 1908 than in any succeeding year, numbering 736. A continuous decline continued until 1911, when 488 deaths were recorded. Since 1911 the number of deaths from typhoid has risen and fallen twice. Of the 284 deaths recorded in 1917, 96 occurred in New South Wales, 62 in Victoria, 51 in Queensland, 29 in South Australia, 29 in Western Australia, and 17 in Tasmania.

(ii.) *Typhus.* No deaths from typhus have been registered from 1910 to 1917.

(iii.) *Malaria.* Deaths from malarial diseases are practically confined to the tropical districts of Northern Queensland and Western Australia, and to the Northern Territory, 37 out of 49 deaths registered in 1917 having occurred in Queensland, 4 in Western Australia, and 2 in the Northern Territory.

(iv.) *Small-pox.* The number of deaths from small-pox in Australia is very small, eleven deaths only resulting in the eight years under review. An epidemic occurred in 1913, but caused only one death. There were three deaths in 1914, one in 1915, and one in 1916.

(v.) *Measles.* No serious epidemic of measles has occurred for several years; the deaths in 1910 numbered 124, while 206 were registered in 1911. In 1912 New South Wales experienced a slight epidemic, and was responsible for 352 deaths out of 519 registered. In 1913 the number of deaths fell to 186, and in 1914 to 155. A large increase

in the number of deaths occurred in 1915, but in 1916 the total fell again to 211, and in 1917 to 72.

(vi.) *Scarlet Fever*. 29 deaths were registered in 1914, 104 in 1915, 134 in 1916, and 64 in 1917.

(vii.) *Whooping Cough*. A rather severe epidemic of whooping cough visited New South Wales in the early part of 1907, causing 592 deaths out of a total of 1070 registered in the Commonwealth. The deaths in 1908 fell to 249, with a slight increase to 257 in 1909, and a much greater increase to 476 in 1910. During 1911, however, only 291 deaths, and in 1912, 301 deaths were registered. In 1913 the number of deaths was 560, falling to 185 in 1915, and increasing again to 426 in 1916, with a further fall to 282 in 1917, of which 142 occurred in New South Wales and 67 in Victoria.

(viii.) *Diphtheria and Croup*. Deaths from this cause increased each year from 421 in 1908 to a maximum of 808 in 1913. The numbers declined to 716 in 1914 and 703 in 1915, but increased to 893 in 1916, and fell to 646 in 1917, of which 249 were registered in New South Wales, 156 in Victoria, 82 in Queensland, 89 in South Australia, 32 in Western Australia and 38 in Tasmania.

(ix.) *Influenza*. This disease was rather more prevalent in 1908 than in any succeeding year, the deaths numbering 588; in 1909, 326; in 1910, 324; in 1911, 447; in 1912, 386; in 1913, 341; in 1914, 331; in 1915, 389; in 1916, 278; and in 1917, 168.

(x.) *Asiatic Cholera*. No cases of Asiatic cholera have ever occurred in the Commonwealth.

(xi.) *Cholera Nostras*. Isolated cases only of choleric form diarrhoea occurred in each of the eight years. One death from this cause was registered during 1917.

(xii.) *Other Epidemic Diseases*. The number of deaths registered under this heading was 184 in 1910, 295 in 1911, 224 in 1912, 185 in 1913, 176 in 1914, 205 in 1915, 249 in 1916, and 144 in 1917. The list in 1917 includes the following diseases:—Dysentery 57, erysipelas 54, leprosy 3, other epidemic diseases 30. Of the 89 deaths from leprosy in the years 1908 to 1917, 73 occurred in Queensland. There have been no deaths from plague in the Commonwealth since 1912. In 1908, 14 deaths were registered; in 1909, 13 deaths, and in 1912, 1 death.

(xiii.) *Tuberculosis of the Lungs and Acute Miliary Tuberculosis*. The deaths in 1917 numbered 2883; viz., 1707 males and 1176 females. The figures for the years 1910 to 1916 were 3059, 3164, 3146, 3252, 3111, 3198 and 2883 respectively. Of the deaths in 1917, 1011 occurred in New South Wales, 908 in Victoria, 312 in Queensland, 341 in South Australia, 214 in Western Australia, 93 in Tasmania, and 4 in the Northern Territory.

(xiii.a.) *Tuberculosis of the Respiratory System*. Of the various forms of tuberculosis prevalent in the Commonwealth, that which has probably attracted the most attention and has been the subject of the widest comment is phthisis, or tuberculosis of the lungs. The intimate relation, however, between tuberculosis of the lungs and that of other parts of the respiratory system renders it desirable that all forms of tuberculosis of the respiratory system should be brought under one head for various investigations concerning the age incidence and duration of this disease.

In the matter of the age incidence of death from tuberculosis of the respiratory system, diagrams were given in Year Books 2, 3, and 4, pp. 239, 217, and 206 respectively, shewing the frequency of deaths at successive ages in England and Wales during 1906 (Fig. 1), and in the Commonwealth during 1907 (Fig. 2). These were superseded by a fuller reference based on later results in Year Book No. 5, pp. 230, etc. The results given depended upon intercensal estimates of population, and these having been adjusted to agree with the Census of 3rd April, 1911, some slight amendments of the figures in previous issues were made in Year Book No. 5.

(xiv.) *Tuberculosis of the Meninges*. The number of deaths ascribed to this cause has varied very slightly during the last eight years. The greatest number of deaths, viz., 269, occurred in 1911, and the least number, viz., 206, in 1917.

(xv.) *Other Forms of Tuberculosis.* The deaths in 1917 include the following forms of tuberculosis :—Abdominal tuberculosis, 107; Pott's disease, 44; white swellings, 22; tuberculosis of other organs, 38; and disseminated tuberculosis, 64.

(xva.) *All Forms of Tuberculosis.* A complete tabulation of all the different tubercular diseases from which deaths occurred in 1917 will be found in Bulletin No. 35 of Population and Vital Statistics. Here it will suffice to show a few of the features of the tabulation mentioned. The total number of deaths due to tubercular diseases was 3364, viz., 1983 males and 1381 females. The following table shews the ages of these 3364 persons :—

**AGES OF PERSONS WHO DIED FROM TUBERCULAR DISEASES, 1917.**  
**COMMONWEALTH.**

Ages.	Male.	Female	Total.	Ages.	Male.	Female	Total.
Under 5 years ...	104	75	179	55 years and under 60	146	53	199
5 years and under 10	27	29	56	60 " " 65	108	36	144
10 " " 15	23	30	53	65 " " 70	65	17	82
15 " " 20	73	97	170	70 " " 75	37	7	44
20 " " 25	159	189	348	75 " " 80	7	7	14
25 " " 30	180	224	404	80 " " over ...	8	7	15
30 " " 35	230	203	433	Unspecified ...	...	1	1
35 " " 40	230	158	388				
40 " " 45	201	104	305				
45 " " 50	211	86	297				
50 " " 55	174	58	232	Total Deaths ...	1,983	1,381	3,364

A tabulation has been made of the occupations of males dying from tubercular diseases during 1917. A summary is here given :—

**OCCUPATIONS OF MALES WHO DIED FROM TUBERCULAR DISEASES, 1917.**  
**COMMONWEALTH.**

Occupation.	No. of Deaths	Occupation.	No. of Deaths
Professional class ...	154	Agricultural class ...	130
Domestic class ...	78	Pastoral class ...	34
Mercantile class ...	261	Working in mines and quarries ...	201
Engaged in transport and communication ...	165	Other primary producers ...	12
Manufacturing class ...	205	Independent means ...	8
Engaged in building and construction ...	80	Dependents ...	249
Other industrial workers ...	375	Occupation not stated ...	31
		Total male deaths ...	1,983

The length of residence in the Commonwealth of persons who died from tubercular diseases has been tabulated for the year 1917 for all the Commonwealth States, with the following results :—

**LENGTH OF RESIDENCE IN COMMONWEALTH**  
**OF PERSONS WHO DIED FROM TUBERCULAR DISEASES, 1917.**

Length of Residence in Commonwealth.	Male.	Fem.	Total.	Length of Residence in Commonwealth.	Male.	Fem.	Total.
Born in Commonwealth ...	1,333	1,186	2,519	Resident 10 yrs. & under 15	38	7	45
Resident under 1 year ...	9	2	11	" 15 " " 20	29	9	38
" 1 year ...	8	7	15	" 20 " " over ...	314	94	408
" 2 years ...	12	5	17	Length of resid'ce not stated	107	18	125
" 3 " " ...	14	6	20				
" 4 " " ...	23	13	36				
" 5 " " & under 10	96	34	130	Total Deaths ...	1,983	1,381	3,364

From the above table and the table on page 197, it will be seen that, among persons who had lived less than 5 years in Australia, 634 deaths occurred, and of these 99, or 15.6 per cent., were due to tubercular diseases.

In order to shew the prevalence of tuberculosis in the several States, the death rates from tubercular diseases are shown in the following table, together with the percentage which deaths from tuberculosis bear on the total number of deaths registered:—

**DEATH RATES (a) FROM TUBERCULOSIS AND PERCENTAGE ON TOTAL DEATHS,  
COMMONWEALTH, 1917.**

State.	Death Rates (a) from Tuberculosis.			Percentage on Total Deaths.		
	Males.	Females.	Total.	Males.	Females.	Total.
New South Wales	0.76	0.46	0.61	6.75	5.82	6.36
Victoria ...	0.90	0.69	0.79	7.56	7.72	7.63
Queensland ...	0.64	0.36	0.50	5.51	4.71	5.20
South Australia ...	1.03	0.88	0.95	8.59	10.32	9.37
Western Australia	1.13	0.40	0.77	9.93	6.21	8.63
Tasmania ...	0.65	0.53	0.59	7.02	6.30	6.67
North. Territory	1.25	...	1.01	9.62	...	7.94
Federal Territory	...	...	...	...	...	...
Commonwealth	0.82	0.55	0.69	7.18	6.77	7.00

(a) Number of deaths from tuberculosis per 1000 of mean population.

The following table, which gives for a number of countries the death-rates from pulmonary and military tuberculosis per 1000 persons living, shews that the Commonwealth occupies a very enviable position when compared with most European countries.

**PULMONARY AND MILITARY TUBERCULOSIS—DEATHS PER 1000 PERSONS LIVING.**

Country.	Year.	Death Rate.	Country.	Year.	Death Rate.
Rumania ...	1914	0.40	United States (Registration Area) ...	1915	1.28
Denmark ...	1914	0.44	Prussia ...	1913	1.37
Commonwealth ...	1917	0.59	Switzerland ...	1914	1.38
New Zealand ...	1915	0.63	Jamaica ...	1915	1.47
Ceylon ...	1915	0.89	Japan ...	1913	1.50
Belgium ...	1912	0.93	Sweden ...	1912	1.60
Ontario (Canada) ...	1915	0.99	Ireland ...	1916	1.69
Italy ...	1914	1.05	Norway ...	1914	1.76
Scotland ...	1916	1.06	France ...	1911	1.80
Netherlands ...	1915	1.10	Chile ...	1914	2.55
England and Wales ...	1916	1.20	Finland ...	1914	2.57
Spain ...	1914	1.23	Austria ...	1912	2.83
United Kingdom ...	1916	1.24	Serbia ...	1911	3.24
German Empire ...	1913	1.24	Hungary ...	1912	3.49

(xvi.) *Cancer and other Malignant Tumours.* The number of deaths from cancer has increased continuously from 2921 in 1908 to 4022 deaths in 1917. Of the deaths registered in 1917, 2062 were those of males, viz., 772 in New South Wales, 614 in Victoria, 290 in Queensland, 201 in South Australia, 108 in Western Australia, 74 in Tasmania, 2 in the Northern Territory, and 1 in the Federal Territory; while 1960 were those of females, viz., 698 in New South Wales, 692 in Victoria, 210 in Queensland, 180 in South Australia, 96 in Western Australia, and 84 in Tasmania. Bulletin No. 35 contains a complete tabulation of the various types of cancer and of the seat of the disease, of which the following is a summary:—

## DEATHS FROM CANCER, COMMONWEALTH, 1917.

Seat of Disease.	Male.	Female	Total.
Cancer, etc., of the buccal cavity ... ..	271	22	293
" " the stomach and liver ... ..	825	600	1,425
" " the peritoneum, the intestines, and the rectum ... ..	292	279	571
" " the female genital organs ... ..	...	398	398
" " the breast ... ..	...	269	269
" " the skin ... ..	111	58	169
" " other organs ... ..	563	334	897
Total Deaths ... ..	2,062	1,960	4,022

Of these deaths, 965 were described as cancer, 1958 as carcinoma, 222 as epithelioma, 411 as "malignant disease," 92 as "malignant tumour," 20 as neoplasm, 40 as "rodent ulcer," 291 as sarcoma, and 23 as scirrhus.

The ages of the 4022 persons who died from cancer in 1917 are shewn in the following table, from which it will be seen that while the ages below 35 are not by any means immune from the disease, the great majority of deaths occurred at ages from 35 upwards, the maximum being found in the age group 60 to 65 :—

## AGES OF PERSONS WHO DIED FROM CANCER, 1917.

## COMMONWEALTH.

Ages.	Male.	Female	Total.	Ages.	Male.	Female	Total.
Under 15 years ...	19	22	41	55 years and under 60	319	250	569
15 years and under 20	7	7	14	60 " " 65	331	267	598
20 " " 25	7	9	16	65 " " 70	298	224	522
25 " " 30	13	28	41	70 " " 75	263	228	491
30 " " 35	18	42	60	75 " " 80	197	165	362
35 " " 40	39	77	116	80 " " 85	100	83	183
40 " " 45	54	127	181	85 years and over ...	51	55	106
45 " " 50	127	163	290	Unspecified ...	2	1	3
50 " " 55	217	212	429	Total Deaths ...	2,062	1,960	4,022

A tabulation, of which the following is a summary, has been made of the occupations of males who died from cancer :—

## OCCUPATIONS OF MALES WHO DIED FROM CANCER, 1917.

## COMMONWEALTH.

Occupation.	No. of Deaths.	Occupation.	No. of Deaths.
Professional class ... ..	110	Pastoral class ... ..	86
Domestic class ... ..	66	Working in mines and quarries ...	100
Mercantile class ... ..	248	Other primary producers ... ..	16
Engaged in transport and communication ... ..	156	Independent means ... ..	42
Manufacturing class ... ..	223	Dependents ... ..	69
Engaged in building and construction ... ..	101	Occupation not stated ... ..	71
Other industrial workers ... ..	404	Total Male Deaths ... ..	2,062
Agricultural class ... ..	370		

As the following tables shew, the total death rates from cancer are below those for tubercular diseases in South Australia and Western Australia only. The male death rates from cancer were, in 1917, in excess of those from tuberculosis in all the States except South Australia and Western Australia, while the female death rates were in excess in all the States with the exception of South Australia. While the death rates from tuberculosis have a general tendency to decrease, the death rates from cancer have, on the contrary, shewn an increase in nearly every recent year. Thus for the whole Commonwealth in 1908 the death rate from tuberculosis was 0.25 per thousand greater than that from cancer. In 1909 this decreased to 0.14; in 1910 to 0.10; in 1911 to 0.09; and in 1912 to 0.03 per thousand, while 1913 shews a slight increase in the excess to 0.04 per thousand. In 1914, while the death rate from tuberculosis decreased from 0.79 to 0.73 per thousand, the rate for cancer remained stationary, the result being that the rate for cancer exceeded that for tuberculosis by 0.02 per thousand. In 1915 the death rate from cancer was 0.03 per thousand; in 1916, 0.06 per thousand; and in 1917, 0.13 per thousand in excess of that of tuberculosis.

**DEATH RATES (a) FROM CANCER AND PERCENTAGE ON TOTAL DEATHS, 1917.**  
COMMONWEALTH.

State.	Death Rates (a) from Cancer.			Percentage on Total Deaths.		
	Males.	Females.	Total.	Males.	Females.	Total.
New South Wales	0.84	0.74	0.79	7.39	9.31	8.19
Victoria ...	0.92	0.94	0.93	7.72	10.48	8.76
Queensland ...	0.83	0.64	0.74	7.20	8.31	7.63
South Australia ...	1.00	0.78	0.88	8.38	9.15	8.73
Western Australia	0.68	0.64	0.66	6.00	9.93	7.37
Tasmania ...	0.74	0.84	0.79	7.99	9.98	8.94
Northern Territ'y	0.50	...	0.40	3.85	...	3.17
Federal Territory	0.72	...	0.40	14.29	...	7.69
Commonwealth	0.86	0.79	0.82	7.47	9.60	8.37

(a) Number of deaths from Cancer per 1000 of mean population.

The following table shows the death rate of the Commonwealth in comparison with other countries:—

**CANCER—DEATH RATE IN VARIOUS COUNTRIES.**

Country.	Year.	Rate.	Country.	Year.	Rate.
Ceylon ...	1915	0.09	Commonwealth ...	1917	0.82
Rumania ...	1914	0.13	New Zealand ...	1915	0.82
Serbia ...	1911	0.14	Prussia ...	1913	0.83
Jamaica ...	1915	0.17	Ireland ...	1916	0.91
Chile ...	1914	0.36	German Empire ...	1913	0.91
Hungary ...	1912	0.47	United States (Registra- tion Area) ...	1915	0.91
Spain ...	1914	0.57	Norway ...	1914	1.02
Denmark ...	1914	0.58	Netherlands ...	1915	1.09
Japan ...	1913	0.66	Sweden ...	1912	1.10
Italy ...	1914	0.67	Scotland ...	1916	1.12
Belgium ...	1912	0.71	United Kingdom ...	1916	1.15
Ontario (Canada)	1915	0.72	England and Wales ...	1916	1.18
France ...	1911	0.80	Switzerland ...	1914	1.28
Austria ...	1912	0.81			

The fifth issue of this Year Book contains, on pages 230, etc., a paper dealing, *inter alia*, with the incidence of cancer in the Commonwealth. The paper is not reprinted in the present issue.

(xvii.) *Simple Meningitis.* Deaths from this cause decreased from 676 deaths in 1908 to 567 in 1910. Since that year the number has increased each year until 1914 when 812 deaths were registered. Sporadic cases of cerebro-spinal meningitis, which occurred to the end of 1914, are included in these figures, but from 1915 onward they were tabulated separately, the deaths during 1917 from cerebro-spinal meningitis being 255, and those from all other forms of meningitis, 435. Of the former, 85 occurred in New South Wales, 76 in Victoria, 54 in Queensland, 18 in South Australia, 13 in Western Australia, and 9 in Tasmania.

(xviii.) *Apoplexy, Hæmorrhage, and Softening of the Brain.* The deaths registered under this heading in 1908, were 1867, viz., 991 males and 876 females; in 1909, 1665, viz., 869 males and 796 females; in 1910, 1704, viz., 864 males and 840 females; in 1911, 2178, viz., 1122 males and 1056 females; in 1912, 2176, viz., 1146 males and 1030 females; in 1913, 2281, viz., 1188 males and 1093 females; in 1914, 2204, viz., 1143 males and 1061 females; in 1915, 2118, viz., 1120 males and 998 females; in 1916, 2230, viz., 1133 males and 1097 females, and in 1917, 2214, viz., 1152 males and 1062 females. The 1917 figures are made up of hæmorrhage of the brain and apoplexy—1117 males, 1007 females, total 2124; and softening of the brain—85 males, 55 females, total 90.

(xix.) *Organic Diseases of the Heart.* The number of deaths registered in 1917 was 3852, viz., 2166 males and 1686 females. Of these deaths, New South Wales was responsible for 807 males and 578 females; Victoria for 619 males and 531 females; Queensland for 299 males and 196 females; South Australia for 211 males and 218 females; Western Australia for 136 males and 80 females; Tasmania for 90 males and 83 females; and the Northern Territory for 4 males. To the figures for 1917 correspond the following death rates and percentages to total deaths:—

**DEATH RATES (a) FROM ORGANIC HEART DISEASE AND PERCENTAGE ON TOTAL DEATHS, COMMONWEALTH, 1917.**

State.	Death Rates (a) from Organic Heart Disease.			Percentage on Total Deaths.		
	Males.	Females.	Total.	Males.	Females.	Total.
New South Wales	0.87	0.61	0.74	7.73	7.71	7.72
Victoria ...	0.93	0.72	0.82	7.78	8.04	7.97
Queensland ...	0.86	0.59	0.73	7.43	7.75	7.55
South Australia ...	1.05	0.94	0.99	8.80	11.09	9.83
Western Australia	0.86	0.53	0.70	7.55	8.27	7.80
Tasmania ...	0.91	0.83	0.87	9.72	9.86	9.78
Northern Territory	1.00	...	0.81	7.69	...	6.35
Federal Territory	...	...	...	...	...	...
Commonwealth ...	0.90	0.68	0.79	7.84	8.26	8.02

(a) Number of deaths from Organic Heart Disease per 1000 of mean population.

(xx.) *Acute Bronchitis.* The classification of causes of death requires deaths of persons under five years of age, which are merely ascribed to "bronchitis," to be classified under "acute bronchitis," and similarly certified deaths of older persons under "chronic

bronchitis." This rule has been followed throughout in compiling the tables for 1908-1917, with the result that acute bronchitis is credited with 412 deaths in 1908, 422 deaths in 1909, 420 deaths in 1910, 515 deaths in 1911, 460 deaths in 1912, 397 deaths in 1913, 389 in 1914, 489 in 1915, 512 in 1916, and 321 deaths in 1917, viz., 189 males and 132 females.

(xxi.) *Chronic Bronchitis.* The adjustment mentioned in the preceding paragraph gives a total of 829 deaths in 1917.

(xxii.) *Pneumonia.* The 1917 figures were 1185 males and 711 females, a total of 1896 deaths.

(xxiii.) *Other Diseases of the Respiratory System.* This head was established in 1910, the figures previously being included in "Other Diseases" (paragraph xxxvii.). Deaths in 1908, 1569; in 1909, 1565; in 1910, 1544; in 1911, 1872; in 1912, 1863; in 1913, 1812; in 1914, 1866; in 1915, 2212; in 1916, 2243, and in 1917, 1941. The total for 1917 is made up as follows, viz.:—Diseases of the larynx, 62 deaths; diseases of the thyroid body, 21 deaths; broncho-pneumonia, 876 deaths; pleurisy, 170 deaths; pulmonary congestion and apoplexy, 262 deaths; gangrene of the lung, 26 deaths; asthma, 158 deaths; pulmonary emphysema, 33 deaths; fibroid phthisis (miners' complaint), 262 deaths; other diseases of the respiratory system (tuberculosis excepted), 71 deaths.

(xxiv.) *Diseases of the Stomach (Cancer excepted).* In 1917 this heading includes: Ulcer of the stomach, 59 males, 46 females; and other diseases of the stomach (cancer excepted), 156 males, 133 females; a total of 394 deaths.

(xxv.) *Diarrhoea and Enteritis (Children under two years only).* The number of deaths due to these causes is always a large one, varying from 1719 deaths in 1917 to a maximum of 3506 deaths in 1914. The total for 1917 was 1719, distributed amongst the six States as follows:—New South Wales, 423 males, 312 females, total 735; Victoria, 219 males, 165 females, total 384; Queensland, 185 males, 126 females, total 311; South Australia, 72 males, 62 females, total 134; Western Australia, 58 males, 41 females, total 99; and Tasmania, 28 males, 28 females, total 56.

The following are the death rates and percentages on total deaths due to infantile diarrhoea and enteritis in the States and Territories for the year 1917:—

**DEATH RATES (a) FROM INFANTILE DIARRHOEA AND ENTERITIS, AND PERCENTAGE ON TOTAL DEATHS, COMMONWEALTH, 1917.**

State.	Death Rates (a) from Infantile Diarrhoea and Enteritis.			Percentage on Total Deaths.		
	Males.	Females.	Total.	Males.	Females.	Total.
New South Wales	0.46	0.33	0.39	4.05	4.16	4.10
Victoria	0.33	0.22	0.27	2.75	2.50	2.64
Queensland	0.53	0.38	0.46	4.59	4.98	4.75
South Australia	0.36	0.27	0.31	3.00	3.15	3.07
Western Australia	0.37	0.27	0.32	3.22	4.24	3.58
Tasmania	0.28	0.28	0.28	3.02	3.33	3.17
Commonwealth	0.41	0.29	0.35	3.57	3.60	3.58

(a) Number of deaths from these diseases per 1000 of mean population.



As a large number of these deaths is directly due to improper feeding, it would be interesting to know the percentage of infants who were bottle-fed, but, unfortunately, no provision exists for the registration of this information. The number of deaths was larger than usual in 1908, particularly in Victoria, and to a lesser degree in South Australia and in Tasmania, owing to the phenomenal heat experienced in the early part of that year. The death rates for the three States named were 0.83, 0.61, and 0.71 per 1000 respectively in 1908, compared with 0.55, 0.45 and 0.48 in 1907, and with 0.50, 0.36 and 0.51 in 1911. The rate in 1912 was higher in every State, Tasmania excepted, than that for 1911, the increase being particularly noticeable in New South Wales, Queensland, and Western Australia. In 1913 all the States, with the exception of New South Wales and South Australia, experienced lower rates than in 1912, and in 1914 the rate fell in New South Wales and Western Australia, while it rose in Victoria, South Australia and Tasmania, and remained stationary in Queensland. The rates for 1915 were considerably lower than those for 1914 in every State with the exception of Queensland and South Australia, while in 1916 Victoria, South Australia, and Tasmania had higher rates than in 1915. In 1917 every State experienced a large fall, the rates in Victoria, South Australia, and Tasmania being less than half those of 1916.

(xxvi.) *Appendicitis and Typhlitis*. Prior to 1910, deaths from these causes were included in *Other Diseases*, paragraph xxxvii. Deaths numbered 293 in 1908, 344 in 1909, 315 in 1910, 320 in 1911, 347 in 1912, 364 in 1913, 374 in 1914, 356 in 1915, 321 in 1916, and 321 in 1917, viz., 185 males and 136 females.

(xxvii.) *Hernia, Intestinal Obstructions*. The number of deaths has not varied much from year to year, the number registered in 1908 being 389; and in 1917, 449, viz., 245 males and 204 females.

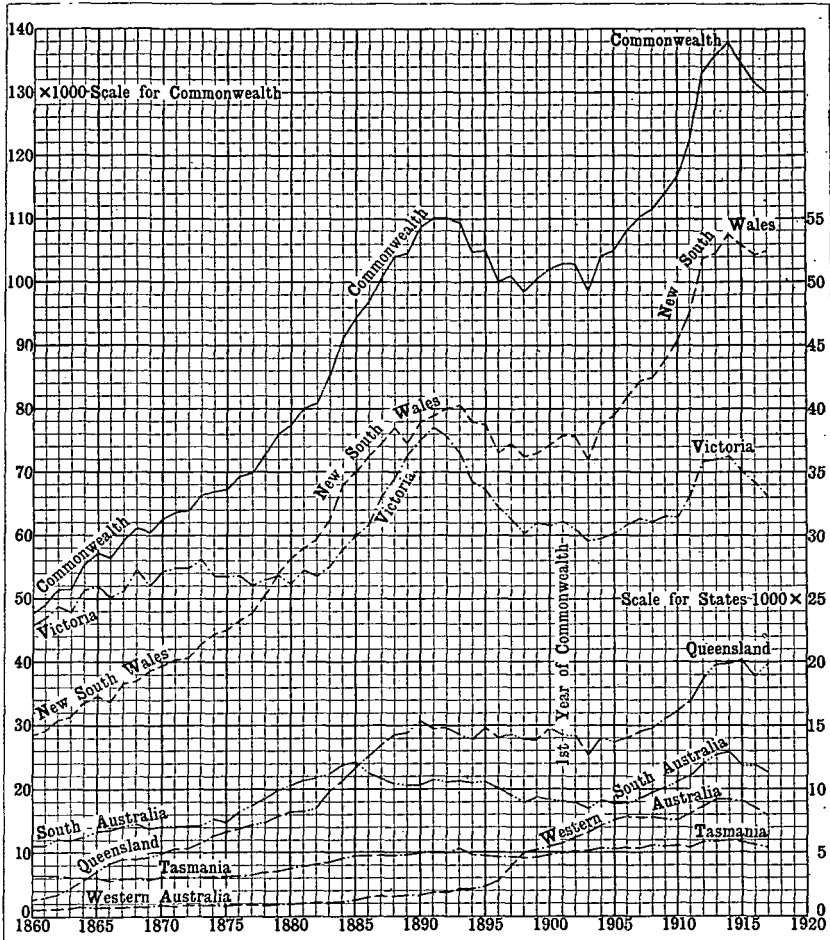
(xxviii.) *Cirrhosis of the Liver*. There is little variation in the number of deaths from 1908 to 1917. 362 deaths were registered in 1908 and 835 in 1917, viz., 214 males and 121 females.

(xxix.) *Nephritis and Bright's Disease*. The number of deaths attributable to these diseases from year to year is a very large one. In 1908 there were registered the deaths of 1140 males and 724 females; in 1909, those of 1076 males and 723 females; in 1910, 1771, 1077 males and 694 females; in 1911, 1951, 1197 males and 754 females; in 1912, 2188, 1352 males and 836 females; in 1913, 2211, 1363 males and 848 females; in 1914, 2127, 1281 males and 846 females; in 1915, 2274, 1413 males and 861 females; in 1916, 2329, 1416 males and 913 females; and in 1917, 2203, 1343 males and 860 females. Of the deaths registered in 1917, those of 89 males and 77 females were ascribed to acute nephritis, and those of 1254 males and 783 females to Bright's Disease. New South Wales was responsible for 786 deaths; Victoria for 714; Queensland for 355; South Australia for 195; Western Australia for 117; Tasmania for 35; and Federal Territory for 1; making a total of 2203.

(xxx.) *Non-cancerous Tumours and other Diseases of the Female Genital Organs*. Deaths in 1908 numbered 159; in 1909, 130; in 1910, 149; in 1911, 120; in 1912, 145; in 1913, 153; in 1914, 138; in 1915, 139; in 1916, 153; and 1917, 148. Included in the 148 deaths registered in 1917 were the following:—Non-puerperal uterine hæmorrhage, 2; non-cancerous uterine tumours, 43; other diseases of the uterus, 37; cysts and ovarian tumours, 26; salpingitis and other diseases of the female genital organs, 40.

(xxxi.) *Puerperal Septicæmia (Puerperal Fever, Puerperal Peritonitis, Puerperal Phlebitis)*. The number of deaths is fairly constant, varying from a maximum of 282 in 1916 to a minimum of 182 in 1915.

GRAPHS SHEWING TOTAL ANNUAL BIRTHS IN THE COMMONWEALTH AND  
STATES OF AUSTRALIA, 1860-1917.



(See Table page 162.)

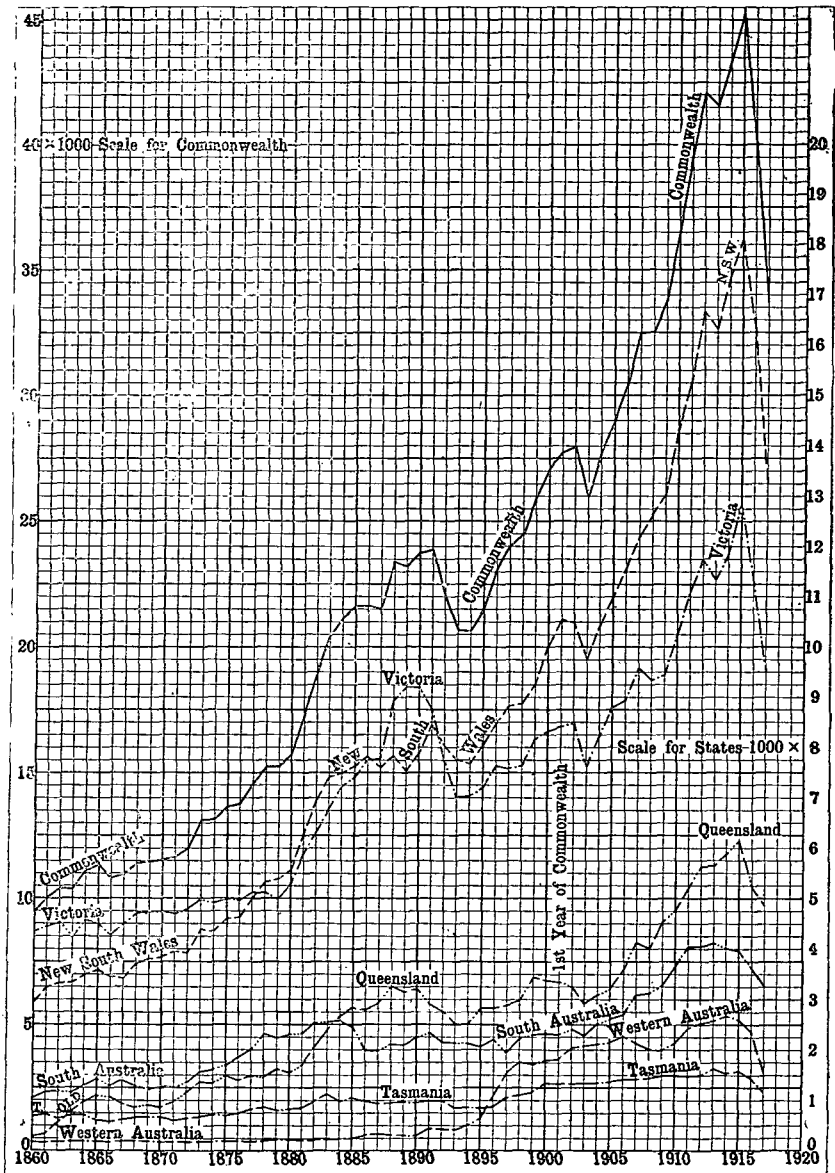
EXPLANATION OF GRAPHS.—The base of each small square represents an interval of one year for both Commonwealth and States, and the vertical height represents 2000 persons for the Commonwealth, and 1000 for the States.

The scale on the left relates to the Commonwealth, and that on the right to the States.

The distances upwards from the common zero lines of the States and Commonwealth, marked 0, denote the total annual number of births in the States and Commonwealth, the scale of the latter being reduced one-half.

The names of the States to which the graphs refer are written thereon, and the characters of the lines used are as follows:—Commonwealth, —————; New South Wales, - - - - -; Victoria, . . . . .; Queensland, — · — · —; South Australia, — — — — —; Western Australia, — · — · —; Tasmania, — · — · —.

GRAPHS SHEWING TOTAL ANNUAL MARRIAGES IN THE COMMONWEALTH AND STATES OF AUSTRALIA, 1860-1917.



(See Table page 180.)

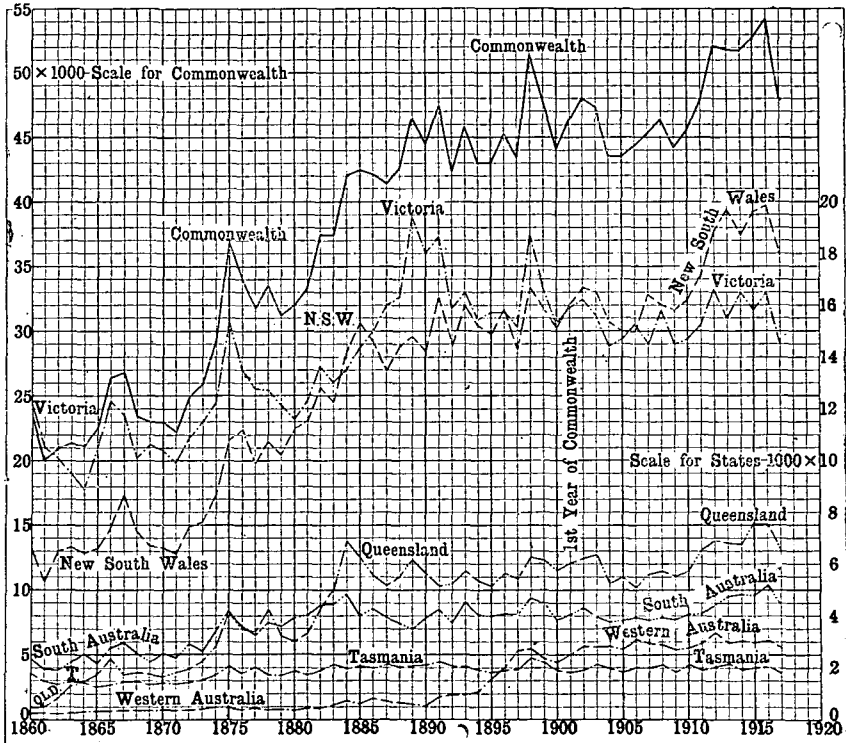
EXPLANATION OF GRAPHS.—The base of each small square represents an interval of one year for both Commonwealth and States, and the vertical height represents 500 marriages for the Commonwealth and 250 for the States.

The scale on the left relates to the Commonwealth, and that on the right relates to the States.

The distances upwards from the zero line, marked 0, denote the total annual number of marriages in the States and Commonwealth, the scale of the latter being reduced one-half.

The names of the States to which the graphs refer are written thereon, and the lines used are similar to those for births on page 217.

GRAPHS SHEWING TOTAL ANNUAL DEATHS IN THE COMMONWEALTH AND STATES OF AUSTRALIA. 1860-1917.



(See Table page 188.)

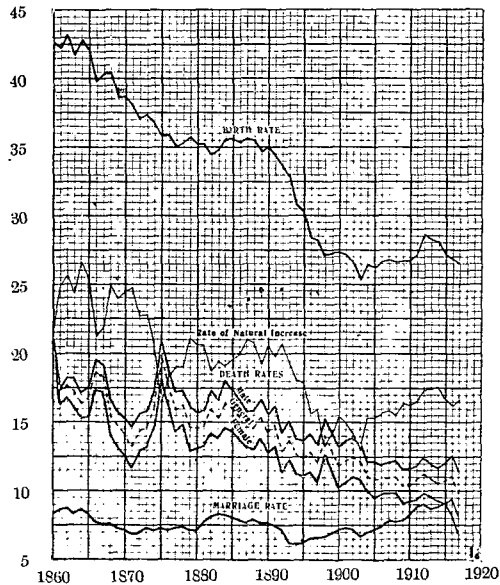
EXPLANATION OF GRAPHS.—The base of each small square represents an interval of one year for both Commonwealth and States, and the vertical height represents 1000 persons for the Commonwealth and 500 for the States.

The scale on the left relates to the Commonwealth, and that on the right relates to the States.

The distances upwards from the common zero line for States and Commonwealth, marked 0, denote the total annual number of deaths in the States and Commonwealth, the scale of the latter being reduced one-half.

The names of the States to which the curves refer are written thereon, and the lines used are similar to those for births on page 217.

GRAPHS SHEWING GENERAL BIRTH, NATURAL INCREASE, DEATH MALE-  
GENERAL, AND FEMALE), AND MARRIAGE RATES IN THE COMMONWEALTH OF  
AUSTRALIA, 1860-1917.



(See pages 163, 180, 187 and 245.)

EXPLANATION OF GRAPHS.—The base of each small square represents one year's interval, and the vertical height, according to the character of the curve, one half per thousand of the population—the basic line being five per thousand of the population.

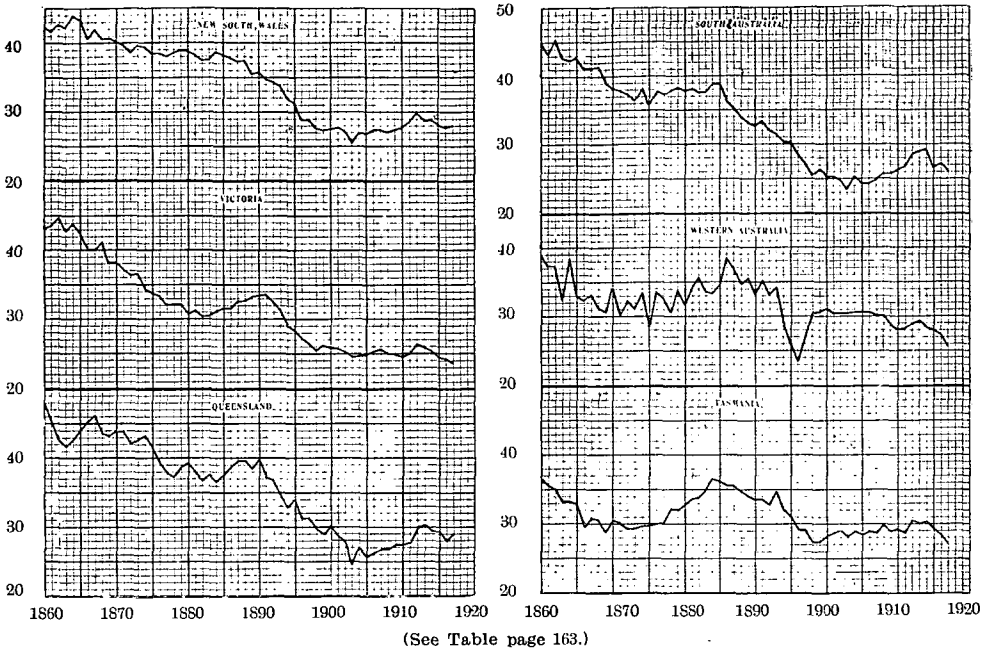
BIRTH RATE GRAPHS. (See next page.)

EXPLANATION OF GRAPHS.—The base of each small square represents one year's interval, and the vertical height one birth per thousand of the population—the basic line for each State being twenty per thousand of the population.

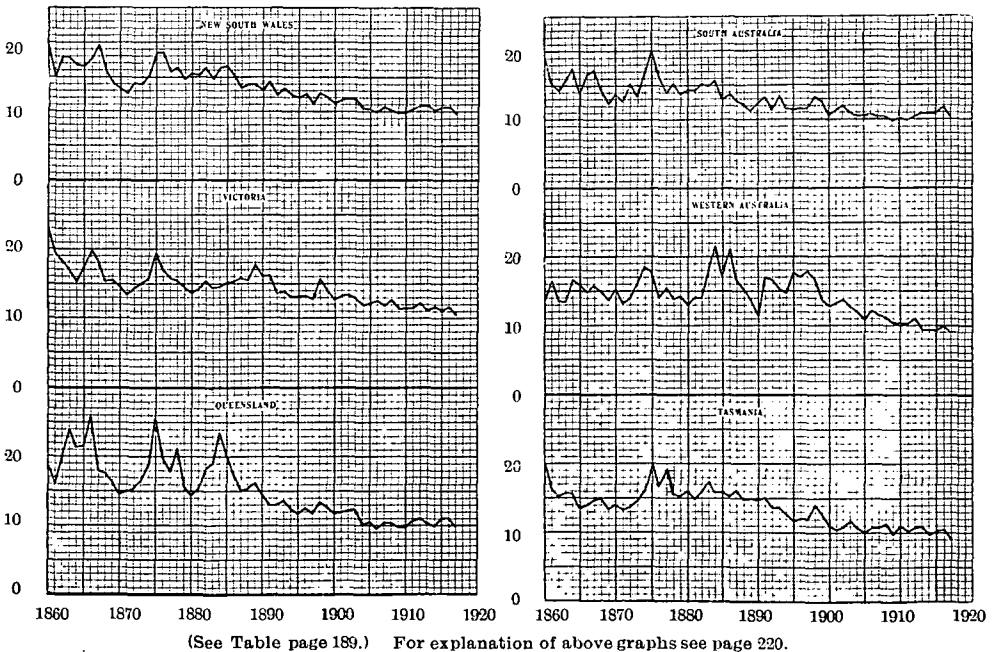
DEATH RATE GRAPHS. (See next page.)

EXPLANATION OF GRAPHS.—The base of each small square represents one year's interval, and the vertical height one death per thousand of the population. The zero for each State is shewn by a thickened line.

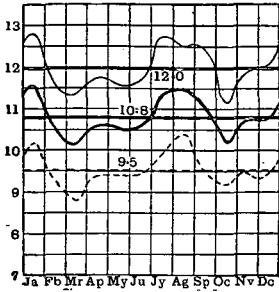
GRAPHS SHEWING BIRTH RATES IN THE STATES OF NEW SOUTH WALES, VICTORIA,  
QUEENSLAND, SOUTH AUSTRALIA, WESTERN AUSTRALIA, AND TASMANIA, 1860-1917.



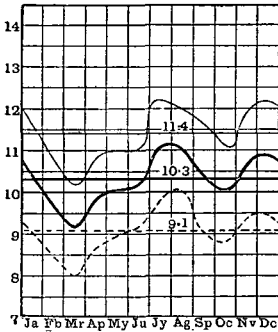
GRAPHS SHEWING DEATH RATES IN THE STATES OF NEW SOUTH WALES, VICTORIA,  
QUEENSLAND, SOUTH AUSTRALIA, WESTERN AUSTRALIA, AND TASMANIA, 1860-1917



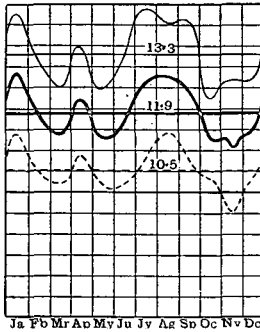
# GRAPHS SHEWING GENERAL MONTHLY DEATH RATES, 1907-1912.



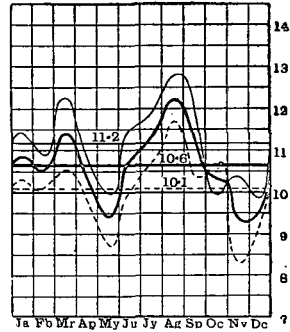
COMMONWEALTH.



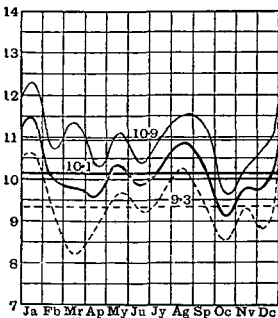
NEW SOUTH WALES.



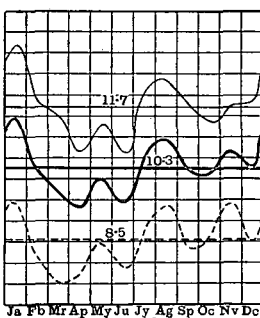
VICTORIA.



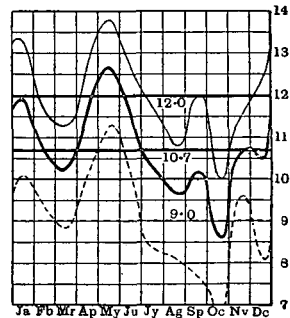
TASMANIA.



SOUTH AUSTRALIA.



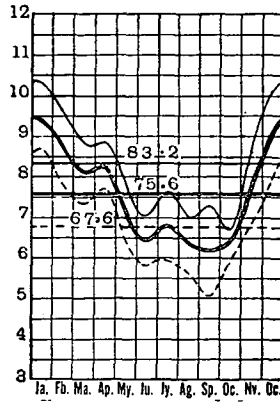
QUEENSLAND.



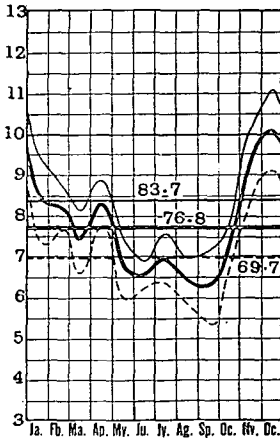
WESTERN AUSTRALIA

Male Death Rates shewn: —————  
 Female     "     "     -----  
 General    "     "     —————

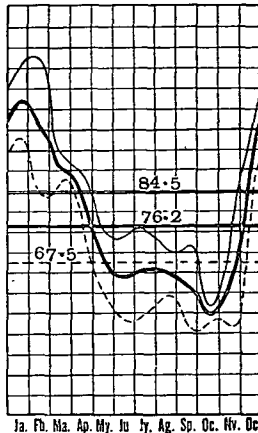
GRAPHS SHEWING INFANTILE MONTHLY DEATH RATES, 1907-1912.



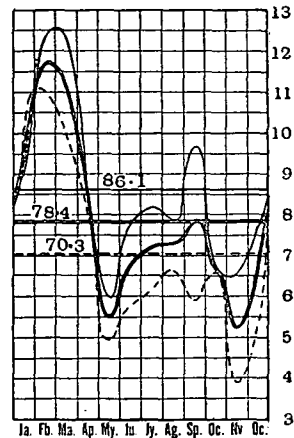
COMMONWEALTH.



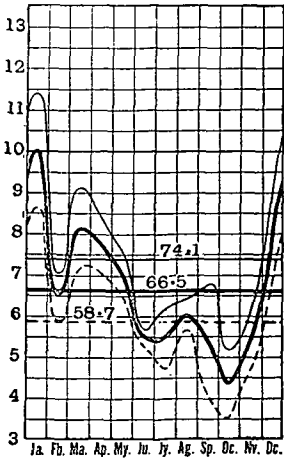
NEW SOUTH WALES.



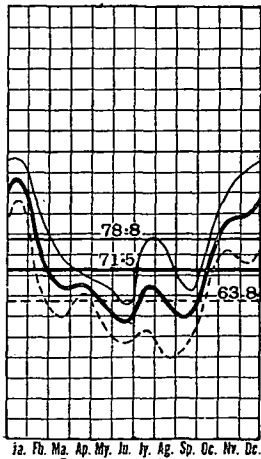
VICTORIA.



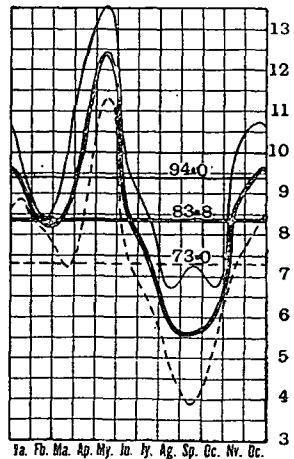
TASMANIA.



SOUTH AUSTRALIA.



QUEENSLAND.



WESTERN AUSTRALIA.

Male Death Rates shewn: ————

Female                    - - - - -

General                 . . . . .





(xxxii.) *Other Puerperal Accidents of Pregnancy and Confinement.* The deaths in 1908 numbered 404; in 1909, 376; in 1910, 373; in 1911, 406; in 1912, 413; in 1913, 428; in 1914, 419; in 1915, 394; in 1916, 411; and in 1917, 482. Included in the 482 deaths registered in 1917 were the following:—Accidents of pregnancy, 92; puerperal hæmorrhage, 96; other accidents of childbirth, 97; puerperal albuminuria and convulsions, 137; puerperal phlegmasia alba dolens, embolus, sudden death, 53; death following childbirth, 6; puerperal diseases of the breast, 1.

(xxxia.) *All Puerperal Causes.* The 732 deaths registered in 1917 under the two preceding headings will be found tabulated in "Bulletin No. 35; Commonwealth Demography" under various aspects. It will suffice to repeat here the following facts:—

Of the 732 mothers who died from puerperal causes during the year 1917, 677 were married and 55 were single. As the total number of nuptial confinements was 122,131, and of ex-nuptial confinements 6321, it follows that one in 180 of married mothers, and one in 115 of single mothers, died from puerperal causes, the general proportion being one in 175, as against one in 215 in 1914, and one in 181 in 1908.

The ages of the mothers who died varied from 17 to 49 years, and are shewn in the following table:—

#### AGES OF MOTHERS WHO DIED FROM PUERPERAL CAUSES, COMMONWEALTH, 1917.

Age at Death.	Married Women.	Single Women.	Total.	Age at Death.	Married Women.	Single Women.	Total.
17 years ...	2	3	5	35 years ...	27	1	28
18 " ...	1	3	4	36 " ...	38	...	38
19 " ...	9	4	13	37 " ...	29	2	31
20 " ...	12	7	19	38 " ...	39	...	39
21 " ...	13	5	18	39 " ...	19	...	19
22 " ...	22	4	26	40 " ...	21	...	21
23 " ...	23	5	28	41 " ...	12	...	12
24 " ...	29	3	32	42 " ...	17	...	17
25 " ...	41	3	44	43 " ...	11	...	11
26 " ...	34	1	35	44 " ...	9	...	9
27 " ...	40	3	43	45 " ...	3	1	4
28 " ...	38	2	40	46 " ...	1	...	1
29 " ...	26	2	28	47 " ...	3	...	3
30 " ...	34	1	35	48 " ...	1	...	1
31 " ...	28	2	30	49 " ...	1	...	1
32 " ...	28	...	28				
33 " ...	36	1	37				
34 " ...	30	2	32				
				Total deaths,	677	55	732

Of the 677 married women shewn in the above table, 106 left no children, 141 left 1 child each, 119 left 2, 90 left 3, 62 left 4, 46 left 5, 35 left 6, 24 left 7, 20 left 8, 13 left 9, 4 left 10, 8 left 11, 5 left 12, 3 left 13, and 1 left 14 children. The total number of children of the 677 mothers was 2023.

Twenty-three of the mothers who died had been married less than one year, 86 between one and two years, 61 between two and three years, the duration of marriage ranging up to 29 years, apart from 16 cases in which the date of marriage cannot be stated. This tabulation will be found in detail, distinguishing the ages at marriage, in "Bulletin No. 35; Commonwealth Demography," as will a further tabulation shewing in

combination the duration of marriage and previous issue. These tables shew, for instance, that one mother, who had been married at the age of 19 years, died at the age of 44, in the 26th year of her marriage, leaving 14 children.

(xxxiii.) *Congenital Debility and Malformations.* The total deaths registered under these heads in 1917 were 3423, of whom 3352 were children under 1 year of age, inclusive of 3021 under three months. The figures include:—Malformations, 306 males, 245 females, total 551; and congenital debility, icterus, and sclerema of children under one year of age, 1666 males and 1206 females, total 2872; or a grand total of 3423. Of these deaths, 1405 were registered in New South Wales, viz., 812 males and 593 females; 874 in Victoria, viz., 508 males and 366 females; 490 in Queensland, viz., 274 males and 216 females; 304 in South Australia, viz., 180 males and 124 females; 208 in Western Australia, viz., 111 males and 97 females; 139 in Tasmania, viz., 84 males and 55 females; 2 males in the Northern Territory, and 1 male in Federal Territory.

(xxxiv.) *Senile Debility.* The deaths ascribed to "old age" form a large group, and are in excess of those due to infantile debility. In 1917, 4770 deaths were attributed to this cause, and were distributed among the States as follows: 1774 occurred in New South Wales, viz., 1027 males and 747 females; 1755 in Victoria, viz., 912 males and 843 females; 386 in Queensland, viz., 239 males and 147 females; 444 in South Australia, viz., 217 males and 227 females; 199 in Western Australia, viz., 132 males and 67 females; 200 in Tasmania, viz., 95 males and 105 females; 11 males in the Northern Territory, and 1 female in the Federal Territory.

Of the males whose death was described as due to senility, one was aged between 45 and 50, 6 were between 50 and 54; 10 between 55 and 59; 58 between 60 and 64; 198 between 65 and 69; 443 between 70 and 74; 600 between 75 and 79; 645 between 80 and 84; 466 between 85 and 89; 146 between 90 and 94; 43 between 95 and 99; while 14 were 100 years old and upwards; and of three the age was not stated.

Of the females, one was between 50 and 54; 11 were between 55 and 59; 33 were between 60 and 64; 124 between 65 and 69; 279 between 70 and 74; 525 between 75 and 79; 558 between 80 and 84; 385 between 85 and 89; 174 between 90 and 94; 42 between 95 and 99; while 5 were 100 years old and upwards.

(xxxv.) *Violence.* A very large number of deaths is due every year to external violence, and, as might be expected from the fact that their occupations expose them much more to accidents, males largely predominate. The figures quoted are exclusive of suicides, which have been treated as a separate group. Deaths ascribed to violence numbered, in 1908, 2922, viz., 2187 males and 735 females; in 1909, 2664, viz., 2050 males and 614 females; in 1910, 2738, viz., 2128 males and 610 females; in 1911, 3018, viz., 2323 males and 695 females; in 1912, 3237, viz., 2559 males and 678 females; in 1913, 3168, viz., 2503 males and 665 females; in 1914, 3121, viz., 2458 males and 663 females; in 1915, 2851, viz., 2251 males and 600 females, in 1916, 2712, viz., 2134 males and 578 females; and in 1917, 2656, viz. 2069 males and 587 females. Of the deaths registered in 1917, those of 785 males and 232 females occurred in New South Wales; those of 466 males and 157 females in Victoria; those of 378 males and 86 females in Queensland; those of 187 males and 59 females in South Australia; those of 186 males and 39 females in Western Australia; those of 59 males and 14 females in Tasmania; and those of 8 males in the Northern Territory.

The following table shews the various kinds of violent deaths which occurred in 1917, distinguishing males and females:—

## DEATHS FROM EXTERNAL VIOLENCE, COMMONWEALTH, 1917.

Cause of Death.	Males.	Females.	Total.
Poisoning by food ... ..	17	12	29
Venomous bites and stings ... ..	11	2	13
Other acute poisonings ... ..	24	14	38
Conflagration ... ..	6	5	11
Burns (conflagration excepted) ... ..	130	151	281
Absorption of deleterious gases (conflagration excepted) ... ..	34	16	50
Accidental drowning ... ..	449	114	563
Traumatism by firearms ... ..	83	13	96
Traumatism by cutting or piercing instruments ... ..	4	1	5
Traumatism by fall ... ..	239	54	293
Traumatism in mines or quarries ... ..	85	...	85
Traumatism by machines ... ..	44	...	44
Traumatism by other crushing (vehicles, railways, etc.) ... ..	486	82	568
Injuries by animals ... ..	46	4	50
Starvation, thirst, fatigue ... ..	33	3	36
Excessive cold ... ..	8	...	8
Effects of heat ... ..	57	16	73
Lightning ... ..	5	...	5
Electricity (lightning excepted) ... ..	10	...	10
Homicide by firearms ... ..	15	6	21
Homicide by cutting or piercing instruments... ..	4	6	10
Homicide by other means ... ..	21	21	42
Fractures (cause not specified) ... ..	63	38	101
Other external violence ... ..	195	29	224
Total Deaths ... ..	2,069	587	2,656

In every kind of violent death there was, therefore, an excess of males, with the exception of burning accidents, in which female deaths predominated, and homicide by cutting or piercing instruments.

(xxxvi.) *Suicide*. It may be said that suicides have shewn a slight tendency to increase during recent years, the number in 1908 having been 497, viz., 413 males and 84 females; in 1909, 495, viz., 398 males and 97 females; in 1910, 516, viz., 432 males and 84 females; in 1911, 544, viz., 446 males and 98 females; in 1912, 631, viz., 514 males and 117 females; in 1913, 647, viz., 516 males and 131 females; in 1914, 643, viz., 534 males and 109 females; in 1915, 653, viz., 536 males and 122 females; in 1916, 577, viz., 466 males and 111 females, and in 1917, 502, viz., 408 males and 94 females. Of the suicides in 1917, those of 133 males and 39 females occurred in New South Wales; those of 98 males and 30 females in Victoria; those of 88 males and 15 females in Queensland; those of 32 males and 6 females in South Australia; those of 45 males and 3 females in Western Australia; those of 8 males and 1 female in Tasmania; those of 3 males in the Northern Territory, and 1 in Federal Territory.

The modes adopted by persons who committed suicide in the years 1908 to 1917 were as follows:—

**MALE AND FEMALE SUICIDES, COMMONWEALTH (MODES ADOPTED), 1908 to 1917.**

Mode of Death.	Males.		Females.		Total.	
	Total of 9 years 1908-16.	191.	Total of 9 years 1908-16.	1917.	Total of 9 years 1908-16.	1917.
Poisoning ... ..	887	79	498	45	1,385	124
Asphyxia ... ..	13	...	3	2	16	2
Hanging or Strangulation ... ..	664	48	122	13	786	61
Drowning ... ..	305	37	151	17	456	54
Firearms ... ..	1,454	144	64	7	1,518	151
Cutting instruments ... ..	681	83	65	3	746	86
Precipitation from a height ... ..	36	2	16	4	52	6
Crushing... ..	59	6	12	1	71	7
Other modes ... ..	156	9	22	2	178	11
Total ... ..	4,255	408	953	94	5,208	502

The death rates from suicide and the percentage on total deaths borne by suicides are shewn in the following table:—

**DEATH RATES (a) FROM SUICIDE AND PERCENTAGE ON TOTAL DEATHS, 1917.**  
COMMONWEALTH.

State.	Death Rates (a) from Suicide.			Percentage on Total Deaths.		
	Males.	Females.	Total.	Males.	Females.	Total.
New South Wales	0.14	0.04	0.09	1.27	0.52	0.96
Victoria ...	0.15	0.04	0.09	1.23	0.45	0.88
Queensland ...	0.25	0.05	0.15	2.19	0.59	1.57
South Australia ...	0.16	0.03	0.09	1.33	0.31	0.87
Western Australia	0.28	0.02	0.16	2.50	0.31	1.73
Tasmania ...	0.08	0.01	0.05	0.86	0.12	0.51
Northern Territory	0.75	...	0.60	5.77	...	4.76
Federal Territory	0.72	...	0.40	14.29	...	7.69
Commonwealth	0.17	0.04	0.10	1.48	0.46	1.05

(a) Number of deaths from suicide per 1000 of mean population.

From the following table, which shews the ages of the persons who committed suicide in 1917, it will be seen that both extreme youth and extreme old age are represented:—

**AGES OF PERSONS WHO COMMITTED SUICIDE, COMMONWEALTH, 1917.**

Ages.	M.	F.	Total.	Ages.	M.	F.	Total.
10 years and under 14	...	1	1	60 years and under 65	29	2	31
15 " " 20	5	10	15	65 " " 70	19	2	21
20 " " 25	16	14	30	70 " " 75	16	3	19
25 " " 30	34	15	49	75 " " 80	6	1	7
30 " " 35	34	10	44	80 " " 85	2	...	2
35 " " 40	40	8	48	85 " " 90	1	...	1
40 " " 45	54	8	62	Age not stated	2	1	3
45 " " 50	45	12	57				
50 " " 55	62	2	64				
55 " " 60	43	5	48				
				Total Deaths ...	408	94	502

The following table shows the occupations of the 408 males who committed suicide:—

**OCCUPATIONS OF MALE PERSONS WHO COMMITTED SUICIDE, 1917.**  
**COMMONWEALTH.**

Occupation.	Deaths.	Occupation.	Deaths.
Professional class ... ..	38	Pastoral class ... ..	20
Domestic class ... ..	15	Working in mines and quarries ...	29
Mercantile class ... ..	56	Other primary producers ... ..	9
Engaged in transport and communication ... ..	27	Independent means ... ..	4
Manufacturing class ... ..	21	Dependents ... ..	4
Engaged in building and construction ... ..	15	Occupation not stated ... ..	18
Indefinite industrial workers ...	104		
Agricultural class ... ..	53	Total Deaths ... ..	408

It has been said that suicide has become more frequent during recent years, but an examination of the figures from the year 1871 onwards shews that the assertion needs qualification. The absolute figures have certainly increased, but proportionately to the population the figures for 1906-10 were practically the same as those for 1886-90 and 1891-95. The figures for the five years 1911-15, shew, however, a regrettable increase, not only absolutely, but also in proportion to the population. Both 1916 and 1917 shew lower figures and percentages than the average of 1911-15, and in 1917 particularly, the figures in proportion to population decreased almost to the level of the period 1871-85. No particulars are available for Western Australia prior to 1886, and from 1886 to 1895 the sexes are not distinguished. The figures for the first five periods are, therefore, exclusive of Western Australia:—

**SUICIDES, COMMONWEALTH, 1871-75 to 1917.**

Period.	Number of Suicides.			Suicides per One Million.			Suicides of Females to 100 Suicides of Males. Based on	
	Males.	Females.	Total.	Males.	Females.	Total.	Absolute Figures.	Rates.
1871-75	715	150	865	150.94	37.56	99.07	20.98	24.88
1876-80	878	145	1,023	159.69	31.06	100.62	16.51	19.45
1881-85	999	183	1,182	152.58	32.90	97.61	18.32	21.56
1886-90	1,394	292	1,686	179.20	43.97	116.92	20.95	24.54
1891-95	1,574	337	1,911	181.34	44.09	117.07	21.41	24.31
1896-1900	1,838	410	2,248	191.11	47.88	123.65	22.31	25.05
1901-05	2,054	380	2,434	201.78	40.88	124.98	18.50	20.26
1906-10	2,031	437	2,468	186.11	43.22	117.39	21.51	23.22
1911-15	2,546	577	3,123	206.15	50.36	131.17	22.66	24.43
1916 ...	466	111	577	190.06	45.21	117.58	23.82	23.78
1917 ...	408	94	502	169.55	37.66	102.40	23.04	22.21

(a) 1705 inclusive of Western Australian figures. (b) 1984 inclusive of Western Australian figures. (c) 116.49 inclusive of Western Australian figures. (d) 119.11 inclusive of Western Australian figures.

In the fifth issue of this Year Book (pp. 240, etc.), the result of a series of investigations into the periodicity of suicide was published. The paper was partly reprinted in the sixth issue (pp. 241, etc.), but is not repeated in the present issue.

(xxxvii.) *Other Diseases.* The number of causes included under this heading is a very large one, amounting to no less than 79 of the items shewn in the detailed classification, and deaths were recorded under every one of these with the exception of the following:—Glanders, rabies, pellagra, occupational poisonings other than lead poisoning, intestinal parasites, chyluria, and non-puerperal diseases of the breast. The total number of deaths under "other diseases" in 1908 was 7417, viz., 4351 males and

3066 females; in 1909, 7419, viz., 4344 males and 3075 females; in 1910, 7794, viz., 4590 males and 3204 females; in 1911, 7652, viz., 4508 males, 3144 females; in 1912, 8300, viz., 4777 males and 3523 females; in 1913, 8241, viz., 4794 males and 3447 females; in 1914, 8670, viz., 5081 males and 3589 females; in 1915, 9090, viz., 5259 males and 3831 females; in 1916, 9433 viz., 5489 males and 3944 females, and in 1917, 8871, viz., 5147 males and 3724 females. In accordance with the revised edition of the classification, the following changes were made in this heading during 1910: beri-beri is now included under this heading instead of under xii., "Other Epidemic Diseases." Other diseases of the respiratory system (2212 deaths) are now shewn under a new head (xxiii.), and appendicitis and typhlitis (356 deaths) under head xxvi. Some of the diseases included here account for very considerable numbers of deaths. Thus there were 745 deaths ascribed to diseases of the arteries, atheroma, and aneurism; 613 to "other diseases peculiar to early infancy"; 549 to diabetes; 548 to diarrhoea and enteritis of children over two years of age and of adults; 459 to acute endocarditis; 434 to embolism and thrombosis; 345 to anæmia and chlorosis; 313 to "paralysis without indicated cause"; 286 to convulsions of children under five years of age; 252 to "other diseases of the nervous system"; 245 to "other diseases of the spinal cord"; 222 to acute and chronic alcoholism; 208 to diseases of the prostate; and 204 to acute articular rheumatism. Particulars of the deaths included in 1917 are shewn in the following table:—

#### CAUSES OF DEATHS INCLUDED UNDER "OTHER DISEASES," COMMONWEALTH, 1917.

Causes.	M.	F.	T'tal.	Causes.	M.	F.	T'tal.
Purulent Infection and Septicæmia ... ..	73	60	133	Diseases of the Lymphatic System ... ..	13	6	19
Anthrax ... ..	1	1	2	Hæmorrhages, Other Diseases of Circulatory System ...	20	10	30
Tetanus ... ..	61	23	84	Diseases of the Mouth and its Associated Organs ... ..	11	8	19
Mycoses ... ..	7	2	9	Diseases of the Pharynx ...	25	15	40
Beri-beri ... ..	35	1	36	Diseases of the Oesophagus ...	8	3	11
Ricketts ... ..	2	2	4	Diarrhoea and Enteritis of Children over two years of age and Adults ... ..	251	267	548
Syphilis ... ..	116	62	178	Ankylostomiasis ... ..	1	2	3
Gonococcus Infection ...	4	...	4	Other Diseases of the Intestine's Acute Yellow Atrophy of the Liver ... ..	48	41	89
Other Tumours (Tumours of the female genital organs excepted) ... ..	13	19	32	Hydatid Tumours of the Liver ...	26	20	46
Acute Articular Rheumatism ...	94	110	204	Biliary Calculi ... ..	36	90	126
Chronic Rheumatism & Gout ...	68	97	165	Other Diseases of the Liver ...	90	103	193
Scurvy ... ..	2	2	4	Diseases of the Spleen ... ..	5	8	13
Diabetes ... ..	227	322	549	Simple Peritonitis (non-puerperal) ... ..	73	70	143
Exophthalmic Goitre ... ..	5	59	64	Other Diseases of the Digestive System ... ..	10	21	31
Addison's Disease ... ..	14	23	37	Other Diseases of the Kidneys and their Adnexa ... ..	107	63	170
Leucæmia ... ..	63	33	96	Calculi of Urinary Passages ...	20	10	30
Anæmia, Chlorosis ... ..	176	169	345	Diseases of the Bladder ... ..	159	36	195
Other General Diseases ... ..	45	29	74	Other Diseases of the Urethra, Urinary Abscess, etc. ...	33	2	35
Acute and Chronic Alcoholism ...	194	28	222	Diseases of the Prostate ... ..	208	...	208
Chronic Lead Poisoning ... ..	16	2	18	Non-venereal Diseases of the Male Genital Organs ...	4	...	4
Other Chronic Poisonings ... ..	6	2	8	Gangrene ... ..	61	63	124
Encephalitis ... ..	60	35	95	Furuncle ... ..	14	7	21
Progressive Locomotor Ataxia ...	58	15	73	Acute Abscess ... ..	44	34	78
Other Diseases of the Spinal Cord ... ..	140	105	245	Other Diseases of the Skin and Adnexa ... ..	17	22	39
Paralysis without indicated cause ... ..	174	139	313	Non-tuberculous Diseases of the Bones ... ..	29	25	54
General Paralysis of the Insane ...	137	19	156	Other Diseases of the Joints (Tuberculosis & Rheumatism excepted) ... ..	5	4	9
Other Forms of Mental Alienation ... ..	36	46	82	Amputations ... ..	2	1	3
Epilepsy ... ..	102	88	190	Other Diseases of the Organs of Locomotion ... ..	2	...	...
Convulsions (non-puerperal) ...	1	12	13	Other Diseases peculiar to Infancy ... ..	351	262	613
Convulsions of Children under five years of age ... ..	164	122	286	Want of Care (Infants) ... ..	10	4	14
Chorea ... ..	3	6	9				
Neuralgia and Neuritis ... ..	9	22	31				
Other Diseases of the Nervous System ... ..	151	101	252				
Diseases of the Eye ... ..	1	2	3				
Diseases of the Ear ... ..	17	12	29				
Pericarditis ... ..	56	35	91				
Acute Endocarditis ... ..	263	196	459				
Angina Pectoris ... ..	111	46	157				
Diseases of the Arteries, Atheroma, Aneurism ... ..	521	224	745				
Embolism and Thrombosis ... ..	200	234	434				
Diseases of the Veins (Varices, Varicose Ulcers, Hæmorrhoids) ... ..	6	14	20				
				Total Deaths ... ..	5,147	3,724	8,871

(xxxviii.) *Unspecified or Ill-defined Diseases.* The number of cases which has to be included here is a considerable one from year to year, comprising 1262 in 1908, 1087 in 1909, 598 in 1910, 460 in 1911, 590 in 1912, 614 in 1913, 644 in 1914, 717 in 1915, 638 in 1916, and 667, viz., 420 males and 247 females, in 1917. The detailed classification distinguishes these ill-defined diseases under three headings:—Ill-defined organic diseases, including such definitions as dropsy, anasarca, ascites, general œdema, etc.; sudden death, including syncope; and unspecified or ill-defined causes, of which the following are specimens:—Asthenia, coma, dentition, exhaustion, heart failure, etc. In 1917 the number of cases of death which would have to be classed under the first of these categories was 85; those belonging to the second, 73; and those belonging to the third, 509. It is, of course, true that there must always occur some cases where the disease is not well characterised, or where sufficient information is not procurable to allow of a clear definition being given in the certificate of death, but in the majority of cases included under this heading a more complete diagnosis and consequently a more satisfactory certificate would no doubt have been possible.

In the fifth issue of this Year Book, pp. 234, etc., some observations were published, dealing with the incidence of scarlet fever, measles, whooping cough, diphtheria and croup, typhoid, diarrhoea, enteritis, and dysentery.

**19. Causes of Death in Classes.**—The figures presented in the preceding paragraphs relate to certain definite causes of death. It is almost generally acknowledged that figures of this kind are of greater value in medical statistics than is a classification under general headings. The classification under fourteen general headings adopted by the compilers of The International Nomenclature is, however, shewn in the following table, together with the death rates and percentages on total deaths pertaining to those classes:

**DEATHS, DEATH RATES (a), AND PERCENTAGES ON TOTAL DEATHS IN CLASSES, 1917.—COMMONWEALTH.**

Class.	Total Deaths.			Death Rate. (a)			Percentage on Total Deaths.		
	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.
1. General diseases ...	6,187	5,175	11,362	2.57	2.07	2.32	22.41	25.35	23.65
2. Diseases of the Nervous System & of the Organs of Special Sense...	2,621	2,060	4,681	1.09	0.83	0.96	9.49	10.09	9.75
3. Diseases of the Circulatory System	3,356	2,451	5,807	1.39	0.98	1.19	12.16	12.00	12.09
4. Diseases of the Respiratory System	3,074	1,913	4,987	1.28	0.77	1.02	11.13	9.37	10.38
5. Diseases of the Digestive Organs...	2,460	2,032	4,492	1.02	0.81	0.92	8.91	9.95	9.35
6. Diseases of the Genito-Urinary System and Adnexa ...	1,874	1,119	2,993	0.78	0.45	0.61	6.79	5.48	6.23
7. Puerperal Condition ...	...	732	732	...	0.29	0.15	...	3.58	1.52
8. Diseases of the Skin and of the Cellular Tissue...	136	126	262	0.06	0.05	0.05	0.49	0.61	0.55
9. Diseases of the Organs of Locomotion ...	38	30	68	0.01	0.01	0.01	0.14	0.15	0.14
10. Malformations ...	306	245	551	0.13	0.10	0.11	1.11	1.20	1.15
11. Infancy ...	2,027	1,472	3,499	0.84	0.59	0.71	7.34	7.21	7.29
12. Old Age ...	2,633	2,137	4,770	1.09	0.86	0.97	9.54	10.47	9.93
13. Violence ...	2,477	681	3,158	1.03	0.27	0.64	8.97	3.33	6.58
14. Ill-defined Diseases ...	420	247	667	0.18	0.10	0.14	1.52	1.21	1.39
Total ...	27,609	20,420	48,029	11.47	8.18	9.80	100.00	100.00	100.00

(a) Number of deaths per 1000 of mean population.

**20. Deaths of Children under 1 Year.**—"Bulletin No. 35; Commonwealth Demography" contains tables shewing for twenty-one causes the age at death of children dying during the first year of life. In the Bulletin mentioned, the particulars are published for males and females separately for the States, Territories and Commonwealth, but the totals for the Commonwealth only are here shewn for both sexes combined:—



## DEATHS OF CHILDREN UNDER 1 YEAR, COMMONWEALTH, 1917.

Age at Death.	Whooping Cough.	Pulmonary Tuberculosis.	Acute Miliary Tuberculosis.	Tubercular Meningitis.	Abdominal Tuberculosis.	White Swellings.	Tuberculosis of Other Organs.	Disseminated Tuberculosis.	Syphilis.	Simple Meningitis.	Cerebro-Spinal Meningitis.	Convulsions.
Under 1 week ...	...	...	...	...	...	...	...	...	5	2	...	86
1 week and under 2 ...	2	...	...	...	...	...	...	...	5	2	...	19
2 weeks " 3 ...	3	...	...	...	...	...	...	...	7	2	...	5
3 " " 1mth. 7	7	1	1	...	...	...	...	...	5	4	...	6
1 month " 2 ...	28	...	...	3	1	...	...	...	12	9	...	14
2 months " 3 ...	34	...	...	2	2	...	...	1	15	7	5	12
3 " " 4 ...	29	...	...	2	2	...	...	...	10	19	3	9
4 " " 5 ...	16	1	1	2	1	...	...	...	5	8	...	7
5 " " 6 ...	11	1	1	2	...	...	...	1	1	9	1	6
6 " " 7 ...	12	1	1	2	...	...	...	...	4	16	6	7
7 " " 8 ...	7	...	2	5	...	...	1	...	4	20	1	6
8 " " 9 ...	6	1	1	3	...	...	...	...	1	9	3	8
9 " " 10 ...	14	...	...	2	2	...	...	...	1	8	5	5
10 " " 11 ...	8	...	...	5	...	1	...	...	...	14	3	14
11 " " 12 ...	10	...	...	2	...	...	...	1	1	11	1	4
Total under 1 year	187	5	7	30	8	1	1	3	76	140	28	208

Age at Death.	Acute Bronchitis.	Broncho-Pneumonia.	Pneumonia.	Diarrhea and Enteritis.	Hernia and Intestinal Obstruction.	Malformations.	Congenital Debility, Icterus and Sclerema.	Other Diseases peculiar to Early Infancy.	Lack of Care.	Other Causes.	Total.
Under 1 week	7	7	7	13	8	232	1,873	519	11	55	2,825
1 week & under 2	12	6	10	26	...	59	248	43	...	40	472
2 weeks " 3	16	7	14	27	...	19	149	23	...	35	307
3 " " 1mth 8	8	6	1	26	1	18	104	7	...	25	220
1 month " 2	37	34	25	104	2	40	164	14	1	69	557
2 months " 3	17	36	20	128	1	18	97	6	1	48	450
3 " " 4	15	26	16	135	2	19	67	1	...	32	387
4 " " 5	10	21	11	138	10	19	47	...	...	23	320
5 " " 6	5	17	11	145	4	12	31	...	...	18	276
6 " " 7	9	19	16	120	12	10	23	...	...	27	285
7 " " 8	8	20	14	116	9	6	19	...	...	29	267
8 " " 9	4	22	24	113	3	8	20	...	...	27	253
9 " " 10	4	20	20	98	8	7	16	...	...	21	231
10 " " 11	3	17	21	88	3	10	9	...	...	29	225
11 " " 12	8	19	15	82	2	3	5	...	...	27	191
Total under 1 year	163	277	225	1,359	65	480	2,872	613	13	505	7,266

It will be seen that the maximum number of deaths from convulsions, pneumonia, acute bronchitis, malformations, congenital debility, icterus and sclerema, other diseases peculiar to early infancy, and lack of care, occurred during the first month of life, while broncho-pneumonia was most fatal during the second and third

months. Diarrhoea and enteritis carried off more children in the fourth and fifth months than in any other, the numbers gradually decreasing toward the end of the year. Whooping cough reached its maximum during the third month of life.

21. **Ages at Death of Married Males and Females, and Issue.**—"Bulletin No. 35; Commonwealth Demography" contains a number of tables, for the Commonwealth, shewing the age at marriage, age at death, duration of life after marriage, birthplaces, and occupations, in combination with the issue of married persons who died in 1917. A short summary of the tables mentioned is given hereunder. Deaths of married males in 1917 numbered 13,718, and of married females, 12,470. The ages at death of the males ranged from 20 to 106 years, and those of the females, from 17 to 105 years. The tabulations mentioned in the sequel deal, however, with only 13,604 males and 12,423 females, the information in the remaining 161 cases being too incomplete to be made use of. The total number of children in the families of the 13,604 males was 69,952, the maximum in one family being 23; and of the 12,423 females, 64,626, with a maximum of 23. The average number of children is shewn for various age-groups in the following table:—

#### AGES AT DEATH OF MARRIED MALES AND FEMALES, AND AVERAGE ISSUE.

COMMONWEALTH, 1917.

Age at Death.	Average Family of Males.	Average Family of Females.	Age at Death.	Average Family of Males.	Average Family of Females.
Under 20 years ...	...	0.50	70 to 74 years ...	6.25	6.45
20 to 24 years ...	0.98	1.18	75 " 79 " ...	6.56	6.44
25 " 29 " ...	1.50	1.88	80 " 84 " ...	6.60	6.50
30 " 34 " ...	1.94	2.61	85 " 89 " ...	6.86	6.47
35 " 39 " ...	2.76	3.37	90 " 94 " ...	6.87	5.85
40 " 44 " ...	3.19	3.97	95 " 99 " ...	6.24	5.95
45 " 49 " ...	3.72	4.04	100 years and upwards	6.91	2.80
50 " 54 " ...	4.20	4.50	Age not stated ...	6.50	6.00
55 " 59 " ...	4.66	5.33			
60 " 64 " ...	5.17	5.67			
65 " 69 " ...	5.73	6.30			
			All ages ...	5.14	5.20

The figures shewn in the preceding table include the issue both living and dead; and the proportion between them, taking the issue of deceased males and females together, was about as 1000 to 298, or, roughly speaking, as ten to three. The totals are shewn in the following table:—

#### ISSUE OF MARRIED MALES AND FEMALES.

COMMONWEALTH, 1917.

Issue of Married Males.	Males.	Females.	Total.	Issue of Married Females.	Males.	Females.	Total.
Living ...	27,674	27,323	54,997	Living ...	24,394	24,277	48,671
Dead ...	8,153	6,802	14,955	Dead ...	8,681	7,274	15,955
Total ...	35,827	34,125	69,952	Total ...	33,075	31,551	64,626

These figures shew a masculinity in the births of 104.91, which agrees fairly well with the experience of the birth statistics, the masculinity of the births in the Commonwealth from 1907 to 1917 having averaged 105.16.

**22. Ages at Marriage of Males and Females, and Issue.**—While the table giving the average families of married males and females naturally shews an increase in the averages with advancing ages at death, the following table, which gives the average families of males and females according to the age at marriage of the deceased parents, shews a corresponding decrease in the averages as the age at marriage advances :—

### AGES AT MARRIAGE OF MALES AND FEMALES, AND AVERAGE ISSUE.

COMMONWEALTH, 1917.

Age at Marriage.	Average Family of Males.	Average Family of Females.	Age at Marriage.	Average Family of Males.	Average Family of Females.
Under 20 years ...	6.73	7.11	55 to 59 years ...	1.09	...
20 to 24 years ...	6.19	5.55	60 „ 64 „ ...	0.80	...
25 „ 29 „ ...	5.48	4.33	65 years and upwards ...	0.10	...
30 „ 34 „ ...	4.66	2.84	Age not stated ...	4.11	4.73
35 „ 39 „ ...	3.99	1.46			
40 „ 44 „ ...	3.07	0.27			
45 „ 49 „ ...	2.10	...			
50 „ 54 „ ...	1.04	...	All ages ...	5.14	5.20

It will be seen that of women who were married at ages from 40 to 44 years; one in every four gave birth to a child.

**23. Duration of Life after Marriage of Males and Females.**—The duration of life after marriage has been tabulated for males and females both in combination with the age at marriage, and with the total and average issue. The tables shewing the result do not, however, lend themselves to condensation, and are, therefore, omitted here. They will be found in “Bulletin No. 35 of Commonwealth Demography,” pages 209 to 214.

**24. Birthplaces of Married Males and Females, and Issue.**—The following table shews the birthplaces of married males and females whose deaths were registered in 1917, together with their average issue. No generalisations can, of course, be made in those cases where the number of deaths is small, and where the average family had to be worked out on small figures. But where the figures are comparatively large, as in the case of natives of the Commonwealth, differences occur between the averages of the individual States which appear inexplicable on any other ground than that of inefficient registration in some of the States. It will be noted that the differences occur both in the male and female averages. Although the figures apply to the Commonwealth as a whole, it must be borne in mind that the vast majority of deaths of natives of any one State are registered in that particular State. The average family of all deceased males who were natives of the Commonwealth was 4.65, and that of deceased females who were natives of the Commonwealth, 4.59.

**BIRTHPLACES AT MARRIAGE OF MALES AND FEMALES, AND AVERAGE ISSUE,  
COMMONWEALTH, 1917.**

Birthplace.	Married Males.		Married Females.		Birthplace.	Married Males.		Married Females.	
	Deaths.	Average Family.	Deaths.	Average Family.		Deaths.	Average Family.	Deaths.	Average Family.
New South Wales	2,204	5.07	2,398	5.06	Japan ...	2	4.00	...	...
Victoria	1,895	4.07	1,835	4.00	Java ...	3	4.63	1	3.00
Queensland	346	3.71	398	3.51	Philippine Islands	3	5.66	...	...
South Australia	698	4.72	722	4.64	Syria	6	5.83	6	4.50
Western Australia	89	5.66	77	5.08	Other Asiatic C'ntries	1	2.00	...	...
Tasmania	486	5.43	502	5.16	Mauritius	6	4.66	1	2.00
New Zealand	76	3.18	65	3.83	Union of South Africa	11	4.18	14	4.28
England	3,959	5.55	2,965	5.71	Other African British Possessions	...	...	3	5.33
Wales	115	4.87	87	5.48	Egypt	...	...	1	7.00
Scotland	1,004	5.47	868	6.05	Other African C'ntries	1	2.00	...	...
Ireland	1,581	5.96	1,932	5.84	Canada	31	4.39	16	6.19
Isle of Man	5	6.20	5	6.40	Jamaica	4	2.25	2	3.50
Other European British Possessions	16	5.50	12	6.17	Newfoundland	3	1.66	...	...
Austria-Hungary	17	3.53	3	6.33	Other American British Possessions	6	2.33	11	6.73
Belgium	8	4.50	2	8.00	Brazil	1	4.00	...	...
Denmark	82	5.05	35	4.80	Chile	...	...	1	6.00
France	39	4.23	24	4.17	Mexico	1	8.00	...	...
Germany	382	5.89	248	6.64	United States	51	4.16	17	5.00
Greece	10	3.90	1	2.00	Other American Countries	4	5.75	1	4.00
Italy	31	3.16	11	4.00	Fiji	1	2.00	5	3.20
Netherlands	11	5.91	4	2.50	Papua	1	...	...	...
Norway	22	4.45	8	3.50	Other Polynesian British Possessions	2	1.00	...	...
Portugal	3	6.00	...	...	New Caledonia	2	11.50	...	...
Russia	66	5.18	19	5.16	New Hebrides	1	6.00	...	...
Spain	11	5.64	1	6.00	Samoa	1	6.00	...	...
Sweden	61	4.48	5	4.20	Other Polynesian Isl'ds	5	3.40	...	...
Switzerland	25	5.84	8	3.37	S. Sea Islands (sodescd.)	5	1.40	5	0.40
Other Europ. Countries	7	5.43	2	1.50	At Sea	46	5.37	40	5.45
British India	36	3.89	30	6.27	Not stated	48	4.23	28	3.39
Ceylon	5	3.40	1	2.00					
Straits Settlements	1	...	1	1.00					
Other Asiatic British Possessions	1	6.00	1	6.00					
China	66	2.42	1	8.00					
					Total	13,604	5.14	12,423	5.20

25. **Occupations of Married Males, and Issue.**—A final tabulation shews the average issue in combination with the occupation of deceased males. When these figures are available for a number of years they will afford some clue to the much debated question as to the decrease in the birth rate among various classes of the population.

**OCCUPATIONS OF MARRIED MALES, AND AVERAGE ISSUE.**

COMMONWEALTH, 1917.

Occupation.	Deaths of Married Males.	Average Family.
Professional class	881	4.38
Domestic class	469	3.92
Mercantile class	1,741	4.40
Engaged in transport and communication	1,124	4.66
Manufacturing class	1,531	4.92
Engaged in building and construction	841	5.17
Indefinite industrial workers	2,301	5.04
Agricultural class	2,335	6.48
Pastoral class	545	5.41
Working in mines and quarries	928	5.32
Other primary producers	111	4.76
Independent means	270	5.82
Dependents	107	4.51
Occupation not stated	420	5.44
Total	13,604	5.14

In the fifth issue of this Year Book (pp. 227 to 229), a series of observations was published dealing with the Commonwealth Rates of Infantile Mortality. These observations are not reprinted in the present issue.

### § 4. Life Tables, 1881-1910.

1. **General.**—Until the Census of 1911, in connection with which numerous and extensive general life tables were compiled, the construction of such tables in Australia had in only two previous instances been carried out by a Government department. One of these was the construction of life tables for New South Wales in connection with the Census of 5th April, 1891, the other was the construction of a similar table for Western Australia in connection with the Census of 31st March, 1901. Several other investigations of the mortality experience of the Australian general population had, however, been made, and had formed the subject of papers read before actuarial and kindred societies, but in no case had complete tables for the whole of Australia been compiled.

In addition to the investigation of the mortality of the general population, there have been several Australian investigations of selected data, of which the more important are the following:—(i.) Life Assurance Experience; (ii.) Friendly Societies' Experience; (iii.) Public Service Experience.

A brief outline of the more important tables constructed from Australian data is given on pp. 298 *et seq.* of Vol. I. of "The Census of the Commonwealth of Australia, 1911."

2. **Australian Life Tables at Census of 1911.**—(i.) *Range of Tables.* For the purpose of presenting a comprehensive view of the variations in mortality in the several Australian States during the thirty years 1881-1910, a series of forty-two life tables was constructed in connection with the Census of 1911. These tables represented separately the male and female experience in each State and in the Commonwealth as a whole for each of the decennia 1881-90, 1891-1900, and 1901-10. They are given in full on pp. 1209 to 1278 of Volume III. of "The Census of the Commonwealth of Australia, 1911," and in a summary and comparative form on pp. 2149 to 2183 of that volume.

(ii.) *Extent of Material.* A full account of the material employed and of the methods of construction used is given in Volume I. of the same publication, on pp. 293 to 346. The total number of deaths of persons of each sex on which the tables were based is given in the following table:—

#### DEATHS IN AUSTRALIA, 1881 to 1910.

State.	MALES.			FEMALES.		
	1881-90.	1891-1900.	1901-10.	1881-90.	1891-1900.	1901-10.
New South Wales ...	80,376	90,064	91,712	57,184	64,521	67,199
Victoria ...	86,915	92,975	84,411	64,544	70,409	67,044
Queensland ...	35,032	35,335	35,678	18,739	20,448	21,279
South Australia ...	22,807	22,812	21,709	18,170	18,906	17,825
Western Australia ...	4,025	11,941	17,840	2,024	5,494	10,154
Tasmania ...	11,785	11,609	10,744	8,391	8,829	9,018
Total Commonwealth	240,940	264,736	262,094	169,052	188,607	192,519

Corresponding particulars for the number of years of life experienced in each of the decennia are as follows:—

#### YEARS OF LIFE EXPERIENCED IN AUSTRALIA, 1881-1910.

State.	MALES.			FEMALES.		
	1881-90.	1891-1900.	1901-10.	1881-90.	1891-1900.	1901-10.
N.S.W.	5,101,143	6,662,044	7,843,071	4,227,990	5,832,261	7,085,601
Victoria	5,134,838	6,040,632	6,085,658	4,632,390	5,732,524	6,182,818
Q'land ...	1,810,294	2,483,400	2,943,181	1,289,712	1,939,491	2,416,046
S. Aust.	1,598,666	1,780,215	1,887,100	1,441,006	1,685,153	1,847,891
W. Aust.	218,775	719,917	1,395,217	156,807	384,624	986,135
Tasmania	691,776	828,267	954,576	611,701	754,949	898,552
Total						
C'with.	14,545,492	18,514,475	21,108,803	12,359,606	16,329,002	19,417,043

(iii.) *The Commonwealth Annual Rates of Mortality.* The following table furnishes for the Commonwealth as a whole a comparative view of the annual rates of mortality for each sex and age in each of the three decennia embraced in the investigation:—

## COMMONWEALTH ANNUAL RATES OF MORTALITY.

AGE. (x)	Commonwealth Rate of Mortality during each Year of Age per 1000 Persons who Entered upon such Age (1000 $q_x$ ).					
	MALES.			FEMALES.		
	Decennium 1881-90.	Decennium 1891-1900.	Decennium 1901-10.	Decennium 1881-90.	Decennium 1891-1900.	Decennium 1901-10.
0	132.48	118.40	95.10	115.72	101.39	79.53
1	34.93	26.36	17.80	33.53	24.76	16.65
2	13.68	9.76	6.75	13.27	9.58	6.29
3	8.87	6.27	4.39	8.30	6.15	4.11
4	6.88	4.96	3.49	6.45	4.87	3.24
5	5.37	3.98	2.81	4.98	3.88	2.58
6	4.32	3.29	2.35	3.91	3.20	2.14
7	3.72	2.90	2.09	3.22	2.78	1.91
8	3.29	2.60	1.96	2.83	2.44	1.75
9	2.90	2.39	1.84	2.60	2.19	1.63
10	2.53	2.25	1.79	2.39	2.00	1.59
11	2.32	2.14	1.79	2.23	1.84	1.63
12	2.32	2.14	1.84	2.23	1.79	1.75
13	2.53	2.30	1.98	2.39	1.89	1.84
14	2.97	2.53	2.25	2.64	2.14	2.00
15	3.72	2.90	2.55	2.99	2.48	2.19
16	4.64	3.29	2.81	3.45	2.90	2.44
17	5.44	3.70	3.03	3.95	3.26	2.69
18	6.08	4.09	3.31	4.43	3.49	2.90
19	6.63	4.43	3.49	4.89	3.70	3.10
20	7.14	4.73	3.70	5.28	3.88	3.29
21	7.57	5.03	3.91	5.65	4.14	3.49
22	7.91	5.33	4.04	5.92	4.43	3.70
23	8.21	5.63	4.18	6.22	4.73	3.88
24	8.48	5.95	4.34	6.56	5.03	4.09
25	8.62	6.17	4.48	7.02	5.33	4.30
26	8.67	6.38	4.64	7.48	5.65	4.48
27	8.67	6.59	4.78	7.82	5.88	4.69
28	8.67	6.72	4.94	8.07	6.08	4.89
29	8.67	6.82	5.03	8.23	6.27	5.03
30	8.67	6.98	5.19	8.28	6.52	5.19
31	8.71	7.18	5.40	8.25	6.82	5.40
32	8.80	7.36	5.58	8.30	7.14	5.58
33	8.96	7.62	5.79	8.46	7.43	5.79
34	9.21	7.91	6.04	8.71	7.73	5.99
35	9.51	8.21	6.33	9.01	7.98	6.17
36	9.81	8.51	6.63	9.35	8.16	6.38
37	10.10	8.80	6.98	9.72	8.37	6.59
38	10.44	9.10	7.86	10.01	8.53	6.77
39	10.83	9.40	7.78	10.26	8.53	6.98
40	11.29	9.69	8.16	10.40	8.37	7.18
41	11.77	9.99	8.60	10.54	8.21	7.36
42	12.31	10.33	9.10	10.79	8.21	7.57
43	12.90	10.79	9.65	11.08	8.39	7.73
44	13.56	11.29	10.24	11.38	8.76	7.87
45	14.24	11.83	10.83	11.67	9.17	8.07
46	14.97	12.43	11.42	12.02	9.56	8.25
47	15.83	13.02	12.04	12.47	9.94	8.51
48	16.71	13.65	12.61	12.97	10.40	8.80
49	17.64	14.38	13.27	13.45	10.88	9.15
50	18.61	15.22	13.95	13.99	11.42	9.56
51	19.65	16.17	14.63	14.63	12.02	9.99
52	20.78	17.19	15.38	15.38	12.65	10.54
53	22.00	18.32	16.22	16.22	13.45	11.17

## COMMONWEALTH ANNUAL RATES OF MORTALITY—Continued.

AGE. (x)	Commonwealth Rate of Mortality during each Year of Age per 1000 Persons who Entered upon such Age (1000 $q_x$ ).					
	MALES.			FEMALES.		
	Decennium 1881-90.	Decennium 1891-1900.	Decennium 1901-10.	Decennium 1881-90.	Decennium 1891-1900.	Decennium 1901-10.
54	23.33	19.58	17.14	17.14	14.38	11.92
55	24.74	21.07	18.16	18.18	15.42	12.77
56	26.20	22.67	19.34	19.27	16.56	13.70
57	27.66	24.38	20.71	20.37	17.78	14.76
58	29.15	26.20	22.29	21.57	19.16	16.06
59	30.72	28.13	24.00	22.74	20.71	17.53
60	32.30	30.27	25.84	23.95	22.45	19.20
61	33.99	32.64	27.88	25.26	24.25	21.01
62	35.86	35.28	30.12	26.67	26.15	22.97
63	38.19	38.23	32.57	28.30	28.15	25.12
64	41.37	41.44	35.37	30.96	30.23	27.45
65	45.82	44.96	38.59	35.50	32.39	29.98
66	50.79	48.50	42.30	40.62	34.73	32.72
67	55.29	51.82	46.44	44.70	37.21	35.77
68	59.00	54.96	51.06	47.82	40.00	39.16
69	61.96	57.87	56.11	50.29	43.16	43.14
70	64.16	60.54	61.62	52.19	46.72	47.77
71	66.72	63.69	67.60	54.13	50.84	53.04
72	70.99	68.63	74.15	57.16	55.70	58.87
73	77.13	75.22	81.22	61.83	60.49	65.02
74	84.64	82.34	88.62	68.42	66.36	71.35
75	92.72	90.11	96.10	76.37	76.30	77.79
76	101.16	98.70	103.69	84.90	85.13	84.31
77	109.96	108.15	111.58	93.75	94.27	91.01
78	118.83	117.92	119.88	103.19	103.23	98.01
79	127.57	127.99	128.68	113.46	112.60	105.42
80	136.46	138.39	137.95	124.47	122.35	113.33
81	145.68	149.06	147.74	136.21	131.92	121.85
82	155.42	160.52	158.76	148.67	141.80	131.00
83	165.92	172.19	170.91	161.56	152.50	140.91
84	177.09	184.09	183.66	174.68	163.45	151.97
85	188.95	196.29	197.01	187.79	174.63	164.59
86	201.42	208.21	210.92	200.87	186.51	178.70
87	214.49	220.39	225.73	213.95	199.02	193.81
88	228.12	232.76	241.82	227.00	212.14	209.38
89	242.26	245.29	259.07	240.22	225.81	225.38
90	256.90	258.38	277.36	253.59	239.99	242.21
91	271.99	271.99	296.60	267.07	254.63	260.17
92	287.46	286.01	316.72	280.68	270.09	279.16
93	303.29	300.79	337.57	294.53	286.64	299.06
94	319.78	317.00	359.07	309.16	304.85	319.75
95	337.23	334.83	381.11	324.87	325.67	341.45
96	355.52	354.46	403.60	341.54	349.47	364.71
97	374.83	376.05	426.41	359.04	376.48	389.62
98	395.68	399.28	449.46	377.60	406.83	415.84
99	426.05	431.77	480.02	405.95	446.61	450.50
100	473.92	481.14	525.36	452.82	501.91	500.73
101	547.27	555.01	592.75	526.94	578.82	573.66
102	654.08	661.00	689.46	637.04	683.43	676.42
103	802.33	806.73	822.76	791.85	821.83	816.14
104	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00

The following is an example of the method of interpreting this table:—According to the Australian experience for the decennium 1881-90, out of each 1000 males who reached age thirty, the number who, on the average, died before reaching age thirty-one was 8.67. The corresponding numbers for the experience of 1891-1900 and 1901-10 were 6.98 and 5.19 respectively.

(iv.) *Survivors out of 100,000 at Birth.* The next table shews for each sex the number of persons who, out of 100,000 at birth, would survive each successive age if the mortality experience of the Commonwealth as a whole in the three decennia under review remained in force throughout life :—

**SURVIVORS OUT OF 100,000 AT BIRTH (COMMONWEALTH MORTALITY EXPERIENCE).**

AGE. (x)	Numbers who Survive each Age out of 100,000 at Birth ( $l_x$ ).					
	MALES.			FEMALES.		
	Decennium 1881-90.	Decennium 1891-1900.	Decennium 1901-10.	Decennium 1881-90.	Decennium 1891-1900.	Decennium 1901-10.
0	100,000	100,000	100,000	100,000	100,000	100,000
1	86,752	88,160	90,490	88,428	89,861	92,047
2	83,722	85,836	88,879	85,463	87,635	90,515
3	82,577	84,998	88,280	84,330	86,796	89,946
4	81,845	84,466	87,892	83,630	86,262	89,576
5	81,281	84,047	87,585	83,090	85,842	89,285
6	80,844	83,712	87,339	82,676	85,509	89,055
7	80,495	83,437	87,134	82,353	85,235	88,865
8	80,196	83,196	86,952	82,088	84,998	88,695
9	79,932	82,979	86,782	81,856	84,791	88,540
10	79,700	82,781	86,622	81,643	84,606	88,395
11	79,499	82,594	86,467	81,448	84,436	88,255
12	79,314	82,418	86,312	81,266	84,281	88,111
13	79,130	82,241	86,153	81,085	84,130	87,957
14	78,930	82,052	85,982	80,891	83,971	87,795
15	78,696	81,845	85,789	80,677	83,792	87,619
16	78,403	81,607	85,570	80,436	83,583	87,428
17	78,039	81,339	85,330	80,159	83,341	87,215
18	77,614	81,038	85,071	79,842	83,069	86,980
19	77,142	80,707	84,789	79,488	82,779	86,728
20	76,630	80,349	84,493	79,099	82,473	86,459
21	76,083	79,969	84,180	78,681	82,152	86,175
22	75,507	79,566	83,851	78,237	81,813	85,874
23	74,910	79,143	83,512	77,773	81,450	85,556
24	74,295	78,697	83,163	77,289	81,064	85,224
25	73,665	78,229	82,802	76,782	80,657	84,875
26	73,030	77,746	82,431	76,243	80,227	84,510
27	72,397	77,250	82,048	75,673	79,774	84,132
28	71,770	76,741	81,656	75,081	79,305	83,738
29	71,148	76,225	81,253	74,475	78,822	83,328
30	70,531	75,706	80,844	73,862	78,329	82,909
31	69,920	75,178	80,425	73,250	77,818	82,478
32	69,311	74,638	79,991	72,646	77,288	82,033
33	68,701	74,088	79,544	72,043	76,736	81,576
34	68,085	73,524	79,082	71,433	76,166	81,104
35	67,457	72,942	78,607	70,811	75,577	80,618
36	66,816	72,344	78,109	70,173	74,974	80,120
37	66,161	71,728	77,591	69,517	74,362	79,609
38	65,492	71,097	77,050	68,841	73,739	79,084
39	64,808	70,450	76,482	68,152	73,111	78,549
40	64,106	69,788	75,887	67,453	72,487	78,001
41	63,383	69,111	75,268	66,751	71,880	77,441
42	62,637	68,421	74,621	66,048	71,290	76,871
43	61,866	67,714	73,942	65,336	70,705	76,289
44	61,067	66,984	73,228	64,612	70,112	75,699
45	60,239	66,228	72,479	63,876	69,498	75,103
46	59,381	65,444	71,694	63,131	68,860	74,497
47	58,492	64,631	70,875	62,372	68,202	73,882
48	57,567	63,790	70,021	61,594	67,524	73,254
49	56,604	62,919	69,139	60,795	66,822	72,609
50	55,606	62,014	68,221	59,978	66,095	71,945
51	54,571	61,070	67,270	59,138	65,340	71,257
52	53,498	60,083	66,286	58,273	64,555	70,546
53	52,387	59,050	65,266	57,377	63,738	69,802



## SURVIVORS OUT OF 100,000 AT BIRTH (COMMONWEALTH MORTALITY EXPERIENCE)—Continued.

AGE. (x)	Numbers who Survive each Age out of 100,000 at Birth ( $l_x$ ).					
	MALES.			FEMALES.		
	Decennium 1881-90.	Decennium 1891-1900.	Decennium 1901-10.	Decennium 1881-90.	Decennium 1891-1900.	Decennium 1901-10.
54	51,234	57,968	64,208	56,447	62,881	69,022
55	50,039	56,833	63,107	55,479	61,977	68,199
56	48,801	55,635	61,961	54,470	61,021	67,329
57	47,523	54,374	60,763	53,421	60,011	66,406
58	46,208	53,048	59,505	52,332	58,944	65,426
59	44,861	51,658	58,178	51,204	57,815	64,375
60	43,483	50,205	56,782	50,039	56,617	63,247
61	42,078	48,686	55,315	48,840	55,346	62,033
62	40,648	47,097	53,772	47,607	54,005	60,730
63	39,190	45,435	52,153	46,337	52,592	59,335
64	37,694	43,698	50,455	45,026	51,112	57,844
65	36,134	41,887	48,670	43,631	49,567	56,256
66	34,479	40,004	46,792	42,082	47,961	54,570
67	32,727	38,064	44,813	40,373	46,296	52,784
68	30,918	36,091	42,732	38,568	44,573	50,896
69	29,094	34,108	40,550	36,724	42,790	48,902
70	27,291	32,134	38,275	34,877	40,943	46,793
71	25,540	30,188	35,916	33,057	39,030	44,557
72	23,836	28,266	33,488	31,267	37,046	42,194
73	22,144	26,326	31,005	29,480	34,982	39,710
74	20,436	24,346	28,487	27,657	32,831	37,128
75	18,706	22,341	25,962	25,765	30,587	34,479
76	16,971	20,328	23,467	23,797	28,253	31,797
77	15,255	18,321	21,034	21,777	25,848	29,116
78	13,577	16,340	18,637	19,736	23,412	26,466
79	11,964	14,413	16,447	17,699	20,995	23,872
80	10,438	12,568	14,330	15,691	18,631	21,356
81	9,013	10,829	12,354	13,738	16,351	18,935
82	7,700	9,215	10,528	11,867	14,194	16,628
83	6,503	7,736	8,857	10,103	12,181	14,450
84	5,424	6,404	7,343	8,470	10,324	12,414
85	4,464	5,225	5,995	6,991	8,636	10,527
86	3,620	4,199	4,814	5,678	7,128	8,795
87	2,891	3,325	3,798	4,537	5,799	7,223
88	2,271	2,592	2,941	3,567	4,645	5,823
89	1,753	1,989	2,230	2,757	3,659	4,604
90	1,328	1,501	1,652	2,095	2,833	3,566
91	987	1,113	1,194	1,564	2,153	2,703
92	719	810	840	1,146	1,605	1,999
93	512	579	574	824	1,171	1,441
94	357	405	380	582	836	1,010
95	243	276	244	402	581	637
96	161	184	151	271	392	453
97	104	119	90	179	255	288
98	65	74	52	114	159	175
99	39	44	28	71	94	103
100	22	25	15	42	52	56
101	12	13	7	23	26	28
102	5	6	3	11	11	12
103	2	2	1	4	3	4
104	...	...	...	1	1	1

The following is an example of the method of interpreting this table:—If the rates of mortality experienced in Australia during the decennium 1881-90 remained in operation throughout the lifetime of a group of males who numbered 100,000 at birth, the number surviving at age thirty would be 70,531. The corresponding numbers for the experience of 1891-1900 and 1901-10 are 75,706 and 80,844 respectively.

(v.) *Expectation of Life.* The final table furnishes for each of the three decennia under review and for each sex the expectation of life at each age from 0 upwards in respect of the Commonwealth as a whole.

For any given mortality table the "expectation of life" at any age is the further period which, on the average, will be lived by the persons attaining that age, on the assumption that the rates of mortality disclosed by the table are experienced.

## COMMONWEALTH EXPECTATION OF LIFE.

AGE. (x)	Expectation of Life at each Age ( $e_x$ ).					
	MALES.			FEMALES.		
	Decennium 1881-90.	Decennium 1891-1900.	Decennium 1901-10.	Decennium 1881-90.	Decennium 1891-1900.	Decennium 1901-10.
0	47.199	51.076	55.200	50.844	54.756	58.837
1	53.343	56.881	59.962	56.444	59.888	62.886
2	54.262	57.413	60.044	57.390	60.401	62.945
3	54.008	56.975	59.449	57.155	59.981	62.341
4	53.487	56.331	58.709	56.630	59.349	61.597
5	52.855	55.609	57.913	55.995	58.637	60.796
6	52.138	54.880	57.075	55.273	57.863	59.952
7	51.362	54.009	56.208	54.488	57.048	59.079
8	50.552	53.164	55.325	53.662	56.206	58.191
9	49.717	52.302	54.432	52.813	55.342	57.292
10	48.861	51.426	53.532	51.949	54.462	56.385
11	47.983	50.541	52.627	51.072	53.570	55.474
12	47.094	49.648	51.720	50.186	52.668	54.564
13	46.202	48.754	50.815	49.297	51.761	53.658
14	45.318	47.865	49.915	48.414	50.858	52.756
15	44.451	46.984	49.026	47.541	49.966	51.861
16	43.615	46.120	48.150	46.682	49.090	50.974
17	42.816	45.270	47.284	45.841	48.231	50.097
18	42.048	44.437	46.427	45.021	47.387	49.231
19	41.302	43.617	45.579	44.219	46.551	48.372
20	40.575	42.809	44.737	43.434	45.722	47.521
21	39.863	42.010	43.902	42.662	44.899	46.676
22	39.163	41.220	43.072	41.902	44.083	45.838
23	38.471	40.438	42.245	41.149	43.277	45.007
24	37.785	39.664	41.420	40.403	42.481	44.180
25	37.104	38.898	40.599	39.667	41.692	43.360
26	36.422	38.137	39.779	38.944	40.913	42.545
27	35.736	37.379	38.962	38.233	40.143	41.733
28	35.044	36.623	38.147	37.531	39.377	40.927
29	34.346	35.868	37.333	36.832	38.615	40.126
30	33.642	35.110	36.520	36.133	37.855	39.327
31	32.932	34.353	35.707	35.431	37.100	38.530
32	32.217	33.598	34.898	34.722	36.351	37.736
33	31.499	32.844	34.092	34.008	35.609	36.944
34	30.779	32.092	33.288	33.294	34.872	36.156
35	30.061	31.344	32.486	32.582	34.140	35.371
36	29.345	30.599	31.690	31.874	33.410	34.588
37	28.630	29.858	30.898	31.170	32.681	33.807
38	27.917	29.118	30.112	30.471	31.953	33.028
39	27.207	28.381	29.331	29.774	31.223	32.250
40	26.499	27.645	28.557	29.077	30.488	31.473
41	25.796	26.911	27.788	28.378	29.741	30.697
42	25.097	26.178	27.025	27.675	28.983	29.920
43	24.403	25.446	26.268	26.971	28.219	29.145
44	23.716	24.717	25.520	26.268	27.453	28.368
45	23.035	23.994	24.778	25.564	26.691	27.589
46	22.361	23.275	24.044	24.860	25.934	26.810
47	21.693	22.562	23.316	24.157	25.179	26.029
48	21.033	21.853	22.594	23.455	24.427	25.247
49	20.383	21.148	21.876	22.757	23.678	24.467
50	19.740	20.450	21.163	22.060	22.933	23.688
51	19.104	19.758	20.456	21.366	22.192	22.912
52	18.477	19.074	19.752	20.676	21.456	22.138

## COMMONWEALTH EXPECTATION OF LIFE—Continued.

AGE. (x)	Expectation of Life at each Age ( $e_x$ ).					
	MALES.			FEMALES.		
	Decennium 1881-90.	Decennium 1891-1900.	Decennium 1901-10.	Decennium 1881-90.	Decennium 1891-1900.	Decennium 1901-10.
53	17.859	18.399	19.053	19.991	20.725	21.369
54	17.249	17.733	18.358	19.312	20.000	20.605
55	16.649	17.077	17.670	18.640	19.285	19.847
56	16.059	16.434	16.987	17.976	18.579	19.097
57	15.477	15.803	16.312	17.319	17.883	18.355
58	14.903	15.186	15.646	16.669	17.198	17.623
59	14.336	14.581	14.992	16.026	16.524	16.902
60	13.774	13.988	14.348	15.387	15.863	16.195
61	13.217	13.409	13.715	14.752	15.215	15.502
62	12.665	12.844	13.094	14.121	14.581	14.823
63	12.117	12.296	12.485	13.495	13.959	14.160
64	11.578	11.765	11.888	12.873	13.348	13.512
65	11.056	11.252	11.306	12.268	12.749	12.879
66	10.563	10.757	10.739	11.701	12.159	12.262
67	10.101	10.280	10.191	11.175	11.578	11.659
68	9.663	9.815	9.663	10.675	11.006	11.073
69	9.237	9.356	9.156	10.185	10.444	10.504
70	8.815	8.900	8.670	9.698	9.892	9.955
71	8.385	8.442	8.207	9.205	9.352	9.429
72	7.949	7.982	7.765	8.703	8.826	8.929
73	7.518	7.533	7.347	8.200	8.317	8.456
74	7.104	7.105	6.952	7.708	7.829	8.009
75	6.715	6.698	6.580	7.237	7.367	7.586
76	6.350	6.312	6.226	6.794	6.934	7.183
77	6.009	5.948	5.889	6.377	6.532	6.799
78	5.690	5.609	5.566	5.985	6.160	6.430
79	5.390	5.293	5.257	5.617	5.812	6.074
80	5.106	4.997	4.960	5.272	5.486	5.731
81	4.835	4.720	4.675	4.950	5.182	5.401
82	4.575	4.460	4.400	4.653	4.894	5.081
83	4.326	4.219	4.137	4.379	4.621	4.772
84	4.089	3.994	3.889	4.128	4.364	4.474
85	3.864	3.785	3.654	3.897	4.121	4.158
86	3.651	3.591	3.431	3.686	3.889	3.916
87	3.448	3.407	3.218	3.489	3.668	3.661
88	3.257	3.233	3.014	3.307	3.459	3.423
89	3.076	3.067	2.821	3.136	3.259	3.200
90	2.906	2.908	2.639	2.975	3.068	2.990
91	2.744	2.754	2.468	2.822	2.885	2.791
92	2.590	2.604	2.308	2.676	2.706	2.603
93	2.443	2.456	2.157	2.534	2.530	2.426
94	2.299	2.308	2.016	2.393	2.354	2.257
95	2.157	2.159	1.883	2.252	2.177	2.095
96	2.016	2.008	1.755	2.109	2.000	1.936
97	1.869	1.853	1.629	1.958	1.821	1.779
98	1.710	1.689	1.499	1.793	1.638	1.616
99	1.526	1.502	1.351	1.599	1.442	1.438
100	1.315	1.293	1.180	1.373	1.233	1.240
101	1.086	1.066	.989	1.125	1.015	1.027
102	.841	.830	.786	.868	.795	.806
103	.598	.593	.583	.610	.577	.585
104	.347	.350	.373	.342	.361	.359

The following is an example of the method of interpreting this table:—If the rates of mortality experienced in Australia during the decennium 1881-90 had remained in operation throughout the lifetime of any group of males, the average period beyond age thirty lived by each of those who reached age thirty would have been 33.642 years. The corresponding figures for the experience of 1891-1900 and 1901-10 are 35.110 and 36.520 respectively.

### § 5. Graphical Representation of Vital Statistics.

1. **General.**—The progressive fluctuations of the numbers representing the total births and marriages are important indexes of the economic conditions and social ideals of a community. For this reason graphs have been prepared (see pages 217 and 218), shewing these fluctuations from 1860 to 1917, both for the States and the Commonwealth. The facts are very significant from the national point of view, and call for serious consideration. To properly appreciate the situation it should be remembered that, normally, the increase of births and also of marriages will be similar to the increase of population. Although the marriage curve shows a falling off in marriages after 1891 (see page 218), it shews a recovery in 1894, and, with the exception of a small fall for 1903, it continually advanced until 1915. In 1916 and 1917 a heavy falling off was recorded, unquestionably owing to the European War. The same characteristic is not seen in the curve of births, which, from 1904 onwards, rose continually to 1914, when there was a decline to 1917.

#### ACTUAL BIRTHS, DEATHS, AND MARRIAGES

EXPERIENCED IN THE COMMONWEALTH DURING THE YEARS 1890 TO 1917,  
COMPARED WITH THE NUMBER THAT WOULD HAVE OCCURRED IF THE  
RATES OF 1890 HAD REMAINED IN OPERATION.

Year.	BIRTHS.		DEATHS.		MARRIAGES.	
	Actual.	Number of Births that would have been experienced if the 1890 birth rate had been in operation.	Actual.	Number of Deaths that would have been experienced if the 1890 death rate had been in operation.	Actual.	Number of Marriages that would have been experienced if the 1890 marriage rate had been in operation.
1890	108,683		44,449		23,725	
1891	110,187	111,802	47,430	45,737	23,862	24,419
1892	110,158	114,502	42,268	46,842	22,049	25,009
1893	109,322	116,617	45,801	47,707	20,631	25,470
1894	104,660	118,734	42,958	48,573	20,625	25,933
1895	105,084	111,002	43,080	49,501	21,564	26,428
1896	100,134	123,212	45,202	50,405	23,068	26,911
1897	101,137	125,419	43,447	51,308	23,939	27,393
1898	98,845	127,371	51,406	52,106	24,472	27,819
1899	100,638	129,088	47,629	52,809	25,958	28,194
1900	102,221	130,848	44,060	53,529	27,101	28,579
1901	102,945	132,599	46,330	54,245	27,753	28,961
1902	102,776	134,603	48,078	55,065	27,926	29,399
1903	98,443	136,189	47,293	55,714	25,977	29,745
1904	104,113	137,917	43,572	56,420	27,682	30,122
1905	104,941	139,959	43,514	57,256	29,004	30,569
1906	107,890	142,030	44,333	58,103	30,410	31,021
1907	110,347	144,248	45,305	59,011	32,470	31,505
1908	111,545	146,720	46,426	60,022	32,551	32,045
1909	114,071	149,526	44,172	61,170	33,775	32,658
1910	116,801	152,869	45,590	62,537	36,592	33,387
1911	122,193	157,072	47,869	64,257	39,482	34,306
1912	133,088	162,477	52,177	66,468	42,147	35,487
1913	135,714	168,032	51,789	68,740	41,594	36,700
1914	137,983	172,073	51,720	70,394	43,311	37,583
1915	134,871	173,159	52,782	70,838	45,224	37,820
1916	131,426	171,654	54,197	70,222	40,289	37,491
1917	129,965	171,484	48,029	70,153	33,666	37,454

The table printed above shews the number of births, marriages and deaths which would have been experienced had the rate for 1890 continued, and reveals the significance of the facts disclosed by the curves. It may be remarked that the death rate

has greatly improved, and among other countries Australia stands in a very favourable position in this respect. At the same time the decline in the marriage rate, overtaken once more in 1907, and the still more serious decline in the birth rate, in a country but sparsely populated, have an obvious and most important bearing on the national future, and on the extent to which it is desirable to promote immigration.

**2. Graphs of Annual Births, Commonwealth and States** (page 217).—A striking feature of the graphs of births is the practically continuous increase in the number of births exhibited in the graph for the Commonwealth from 1860 to 1891, and the marked variations of subsequent years. As the curve clearly shews, a turning point in the number of births occurred in 1891, whilst, as regards the separate States, New South Wales and Tasmania date their decline in number from 1893, Victoria from 1891, and Queensland from 1890. In South Australia the corresponding decline took place as early as 1885, while in Western Australia the increase in number of births has been practically continuous throughout.

It is of special interest to note the decline in births associated with the commercial crisis of 1891-3, and also the decline occurring in 1903, an accompaniment of the severe drought of that period.

In the case of New South Wales the graph crosses that of Victoria in 1879, *i.e.*, the births for that year were sensibly identical in the two States. A fairly continuous increase was experienced in the former State from 1860 to 1893, the only marked fluctuation being a sudden decline in 1889 and an equally rapid recovery in 1890. From 1893 to 1898 a somewhat rapid decline again took place, succeeded by a rise, the continuity of which was broken only by a sharp decline in 1903 and recovery in 1904. From 1904 to 1914 there was a gradual rise, followed in 1915, 1916 and 1917 by a continuous decline.

In the case of Victoria the graph shews the increase between 1860 and 1880 to have been comparatively slight, the curve being a gradual rise, with fluctuations more or less marked to 1873, with a subsequent decline. From 1880 to 1891 the increase in the number of births is seen to be very rapid and practically continuous, while from 1891 to 1898 an equally sharp and continuous decline was experienced. A further rise and fall took place between 1898 and 1903, succeeded by a continuous rise from the last-mentioned year to 1907, and a slight fall in 1908, followed by a recovery in 1909. A slight fall in 1910 was followed by a continuous rise to 1914, since which year a continuous decline has been experienced.

Starting in 1860 with a lower number of births than any State except Western Australia, the Queensland graph shews that the births increased somewhat rapidly until 1867. The equality in the number of births in Queensland and Tasmania in 1864 is shewn by the Queensland curve crossing the Tasmanian curve at the line for that year. From 1867 to 1882 a continuous though somewhat less rapid increase was experienced, followed by a very rapid rise to 1890, in which year Queensland's maximum number of births prior to 1909 and subsequent years was recorded. The South Australian graph is crossed by that of Queensland at the year 1885. From 1890 onwards the number of births has fluctuated somewhat, but has, on the whole, retained a practically stationary position at a height rather less than that of 1890. The most serious variation was a sudden fall in 1903, the drought year, and rapid recovery in 1904, with a further fall in 1905, and a continuous rise from 1906 to 1915. In 1916 there was a sudden fall, followed by a rapid rise in 1917.

The South Australian graph, a slow but practically continuous rise from 1860 to 1885, exhibits the steady increase in the total number of births. This rise is followed by a slow but fluctuating decline to 1903, and a slight recovery to 1914. In 1915 there was a rapid fall, a slight rise in 1916, and a further fall in 1917.

The Tasmanian curve may be regarded as made up of five portions, of which the first, from 1860 to 1877, represents a period of very slight variation, with, on the whole, an increase; the second, from 1877 to 1884, a period of continuous, and moderately rapid increase; the third, from 1884 to 1893, a period of rapid increase; the fourth,

from 1893 to 1898, a period of continuous but slow decrease; and the fifth, from 1898 to 1914, a period of steady recovery. Since 1914 there has been a continuous fall.

The Western Australian curve indicates that an increase, which was practically continuous but very slow, took place from 1860 to 1884, and that a somewhat quicker rate of increase, experienced from 1884 to 1896, was succeeded by a still more rapid and very satisfactory rate of increase from 1896 to 1906. A slight fall was apparent to 1910, followed by a rapid rise to 1913. Since 1913 there has been a decline.

It will be seen that the years in which the highest points were reached by the several curves are as follows:—

State ...	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
Year ...	1914	1891	1915	1914	1913	1914	1914

3. **Graphs of Annual Marriages, Commonwealth and States** (page 218).—The Commonwealth marriage graph from 1860 to 1885 reveals a moderate but somewhat fluctuating increase in the annual number of marriages between 1860 and 1871, a more rapid increase between 1871 and 1879, and a still more rapid increase between 1879 and 1885. From 1885 to 1891 the numbers continued to increase, but with marked fluctuations in rate. The financial crisis associated with the period subsequent to the latter year was accompanied by a strongly-marked decline in the number of marriages, which reached its lowest point in 1894. From that year onwards a fairly rapid recovery was effected, the record for 1891 being exceeded by that of 1897. This progress was maintained until 1902, when the severe drought of that and the succeeding year was collateral with a rapid fall in the number of marriages. An equally rapid recovery, however, has since taken place, and the number of marriages in the Commonwealth during 1915 was greater than in any preceding year. In 1916, and 1917, as already mentioned, there was a heavy falling off.

4. **Graphs of Annual Deaths, Commonwealth and States** (page 219).—The curves shewing the progression of the annual number of deaths indicate clearly that the periods for which exceptionally large numbers of deaths occurred were:—(a) 1866-7, (b) 1875-6, (c) 1884-5, (d) 1889-1891, (e) 1893, (f) 1898, and (g) 1902-3. It is remarkable that in each of the periods specified the phenomenon of a relatively high number of deaths was experienced in the majority of the States. Thus, as regards 1866-7, all the States except Western Australia and Tasmania were so affected; in 1875-6 all except Western Australia; in 1884-5 all were affected; in 1889 all except Western Australia and South Australia; in 1891 all except Queensland; whilst in 1893, 1898, and 1902-3, all were affected. The fact that the periods of high death rates have been practically identical in the several States furnishes an indication that the excessive mortality has been due to a considerable extent to some common cause operating throughout the Commonwealth.

It may be noted as curious that periods of heavy mortality have occurred at intervals of approximately nine years, viz.:—1866-7, 1875-6, 1884-5, 1893, and 1902-3. There are, however, two marked increases between the third and fourth dates, and one between the fourth and fifth.

Periods in which the number of deaths was exceptionally low are far less clearly defined than those in which the number was high, and the agreement amongst the States is also less complete. The principal periods of low mortality may be said to be 1861, 1869-71, 1879, 1892, 1897, 1900, 1904-5, 1909, 1914. In 1917 there were marked declines in all the States.

5. **Graphs of Annual Birth, Death, and Marriage Rates and of Rate of Natural Increase—Commonwealth** (page 220).—(i.) *General*. These graphs represent the number of births, deaths, and marriages, and the excess of births over deaths (natural increase) per 1000 of the population of the Commonwealth, for each of the years 1860 to 1917.

(ii.) *Births.* In the case of births, the graph indicates a well marked decline in rate during the period, and represents a fall from 42.56 per 1000 of population in 1860 to 26.51 per 1000 in 1917. This enormous reduction has been subject to small fluctuations during the period under review, but may, on the whole, be said to have been in evidence throughout. There are, however, two periods of arrested decline noticeable, one from 1877 to 1890, and the other from 1898 to the present time. The course of the graph thus indicates a rapid fall from 42.56 in 1860 to 34.99 in 1877, succeeded by a fluctuating but, on the whole, fairly stationary period to 34.98 in 1890, then a fall even more rapid to 27.15 in 1898, and a further comparatively stationary period to 26.51 in 1917. The lowest point reached, viz., 25.29, was attained in 1903, the year in which the Commonwealth suffered severely from the worst drought it has ever experienced. From 1903 to 1912 there was an advance in the rate, followed by a decline to 1917. A declining birth rate is usually due to complex causes, amongst which the variations in the age constitution of the population, and the adoption of preventive measures, are generally considered the most potent. The highest birth rate recorded was 43.27 in 1862.

(iii.) *Deaths.* The three graphs relating to deaths furnish particulars concerning the rates experienced during the period amongst males and females separately, and in the population as a whole, the latter occupying naturally a position between the other two. Throughout the period the rate for males has largely exceeded that for females, but the fluctuations in the two rates have synchronised remarkably, indicating that the conditions which have been responsible for the marked variations which have occurred from time to time have affected males and females alike. On the whole, the graphs furnish clear evidence of a satisfactory decline in the general death rate of the Commonwealth, a fall having taken place from 20.86 in 1860 to 10.66 in 1915. In 1916 there was a slight rise to 11.04, followed in 1917 by a fall to 9.80, the lowest rate yet recorded in the Commonwealth as a whole. The graphical representation of the death rates brings into prominence five years in which the rates were exceptionally high when compared with those of adjacent years. These years are 1860, 1866, 1875, 1884, and 1898. The principal cause of the excessive rate of 1860 was the prevalence in that year of measles, scarlatina, and diphtheria, while the high rates of 1866, 1875, and 1898 were also largely due to epidemics of measles. Prior to 1892, when a rate of 12.91 was experienced, the lowest general death rate for the Commonwealth was that of 1871, viz., 13.24. The highest male death rate for the period was 20.97 in 1860, and the lowest 11.47 in 1917. For females the highest was 20.71 in 1860, and the lowest 8.18 in 1917. The difference between the male and female rate has, since 1869, been fairly constant, and has ranged between 1.97 and 3.44, with a mean value of about 2.7.

(iv.) *Marriages.* In the case of the graph representing marriage rates, the fluctuations are less abrupt than in the case of the birth rate and death rate graphs, and the rate for 1915, 9.14, the highest ever recorded, does not differ very considerably from that of 1860, which was 8.42. The lowest marriage rate for the period was that of 1894, viz., 6.08, marking the culmination of the commercial and financial depression indicated by the declining rates from 1888 onwards. From 1894 to the present time a satisfactory increase has been in evidence, disturbed only by the sharp decline which, in 1903, accompanied the severe drought experienced in the Commonwealth in that year. In 1916 and 1917 the rate declined to 8.21 and 6.87 respectively.

(v.) *Natural Increase.* This graph, which represents the excess of births over deaths per 1000 of population, exhibits marked fluctuations arising from the combined fluctuations in birth and death rates. Thus, corresponding to the high death rates of 1860, 1866, 1875, and 1898, there are exceptionally low rates of natural increase, accentuated in the last-mentioned year by a comparatively low birth rate. A combination of low birth rate and comparatively high death rate was also responsible for a very low rate of natural increase in 1903. The highest rate of natural increase for the period was 26.58 in 1864, and the lowest 13.03 in 1898.

**6. Graphs of Annual Birth Rates—States** (page 221).—These graphs furnish for the several States information similar to that supplied in the graph on page 220 for the Commonwealth as a whole. It will be seen that in every case the total effect has been an extensive decline in rate, subject to very marked fluctuations. In all the States the period from 1875 to 1885 was one of arrested decline, if not of actual advance, in the birth rate. With the exception of the very low rate accompanying the drought in 1903, the variations in any of the States since 1901 have not been very marked, and in most cases a slight tendency to increase is in evidence.

The highest birth rates during the period were as follows:—New South Wales (1864), 44.00; Victoria (1862), 44.71; Queensland (1860), 47.93; South Australia (1862), 45.44; Western Australia (1860), 38.96; and Tasmania (1884), 36.63. The following were the lowest rates for the period:—New South Wales (1903), 25.44; Victoria (1917), 23.50; Queensland (1903), 24.53; South Australia (1903), 23.84; Western Australia (1896), 23.44; Tasmania (1917), 27.03.

**7. Graphs of Annual Death Rates—States** (page 221).—These graphs furnish for the several States similar information to that given for the Commonwealth as a whole in the diagram on page 220, and indicate in each case a satisfactory decline in death rate. It may be noted that an exceptionally high death rate was experienced in all the States in 1875, and that a similar uniformity, though on a smaller scale, is observable for the year 1898, the principal cause in each case having been an epidemic of measles. The highest death rates experienced during the period were as follows:—New South Wales (1867), 19.79; Victoria (1860), 22.77; Queensland (1866), 25.96; South Australia (1875) 19.97; Western Australia (1884), 21.54; and Tasmania (1875), 19.99. The following were the lowest death rates for the period:—New South Wales (1917), 9.60; Victoria (1917), 10.36; Queensland (1906), 9.50; South Australia (1909), 9.74; Western Australia (1917), 8.97; and Tasmania (1917), 8.89.

**8. Graphs shewing Variations in Annual Death Rates from Month to Month.**—The graphs on pages 222 and 223 shew for the Commonwealth as a whole and for each of the six States the annual death rates for males, females, and persons calculated for equalised months, and the infantile death rate, calculated in the same way, and also distinguishing males, females, and persons. Further particulars in regard to these graphs will be found on pages 202 and 203.



## SECTION VI.

## LAND TENURE AND SETTLEMENT.

## § 1. Introduction and Early History.

1. **Introduction.**—A comprehensive description, in a classified form, of the land tenure systems of the several States has been given in preceding issues of this book; see especially Year Book No. 4 (pp. 235 to 333). The details of that description have been necessarily condensed in the present issue, and for more complete information for past years, reference may therefore be made to Year Book No. 4. The historical matter dealing with the development of land legislation in the individual States may be found in Year Book No. 2 (pp. 263 to 272), and in a more condensed form in Year Books No. 3 (pp. 245 to 254), and No. 4 (pp. 235 to 244).

## § 2. Land Legislation in Individual States.

1. **New South Wales.**—(i.) *Acts now in Force.* The Crown Lands Act of 1884 and the supplementary Act of 1889 (now incorporated in the Crown Lands Consolidation Act 1913), were passed chiefly for the purpose of putting an end to speculative selection without *bond fide* intention of settlement. Pastoral leases were required to be surrendered to the Crown and divided into two equal parts, one of which was returned to the lessee under a lease with a fixity of tenure for a term of years, the other half the lessee was allowed to hold under an annual occupation license, but this half was always open for selection.

Nevertheless accumulation of land into large estates continued, and settlement proceeded slowly. Entirely new principles of agrarian legislation have been embodied in Crown Lands Acts passed in the years 1895 to 1917, the Closer Settlement Acts 1904 to 1914, and the Closer Settlement Promotion Act 1910, which offer *bond fide* settlers special inducements by the introduction of new forms of tenure on easy terms and conditions.

(ii.) *The Western Lands Acts.* All Crown lands in the Western Division of New South Wales are now subject to the special provisions of the Western Lands Acts 1901 and 1905. All leases or occupation licenses could be brought within the provisions of the Western Lands Act by application before the 30th June, 1902. Otherwise the leases or licenses were dealt with by the Board as if the Act had not been passed. All leases issued or brought under the provisions of the Western Lands Acts expire on the 30th June, 1943, except in cases where part of the land leased is withdrawn for the purpose of sale by auction, or to provide small holdings, in which case an extension of the term of lease of the remainder may be granted as compensation for the part withdrawn.

2. **Victoria.**—(i.) *Acts now in Force.* The Land Act 1901-1915, deals with the whole system of land occupation and alienation in this State. Closer Settlement was provided for by the Land Acts of 1898 and 1901 and amendments, until the introduction of the Closer Settlement Act 1904, amended in 1906, 1907, 1909, 1910, 1911, and 1912, and now included in the Closer Settlement Act 1915. Other special forms of tenure have been provided for by the Settlement on Lands Act 1893, and the Small Improved Holdings Act 1906; these, however, are now embraced in the Land Acts and Closer Settlement Act respectively.

(ii.) *Mallee Lands.* The lands in the Mallee territory, comprising an area of about 11,000,000 acres in the north-western district of the State, can be cleared at a moderate expenditure. An extension of railway facilities and of successful systems of water supply should bring this territory into greater prominence as a field for agricultural enterprise. More than one-half of this area is unalienated and available for occupation.

3. *Queensland.—Acts now in Force.* The Acts now in force are the Land Acts 1910-1917 and the Closer Settlement Acts 1906-1917. These Acts substitute perpetual leasehold tenures for freeholding tenures in the case of all new selections and auction purchases, but conversion of existing holdings to the leasehold tenure is optional with the selector.

4. *South Australia.—Acts now in Force.* The Crown Lands Acts 1915 repealed and consolidated previous Acts, and also consolidated the Closer Settlement and Village Settlement Acts. The Pastoral Act 1904 controls the pastoral occupation of lands, and the Irrigation and Reclaimed Land Acts of 1914 provide for leases of reclaimed and irrigable lands.

5. *Western Australia.—Acts now in Force.* The Land Act 1898, which consolidated previous legislation as to the management of Crown Lands, has in turn been amended at various times, and, with such amendments, is now in force. The principle of repurchasing Crown lands for the purpose of Closer Settlement was introduced by the Agricultural Lands Purchase Acts 1896 to 1904; these Acts were repealed and consolidated by the Agricultural Lands Purchase Act 1909.

6. *Tasmania.—Acts now in Force.* The law relating to land tenure and settlement is now consolidated in the Crown Lands Act 1911, and in the Closer Settlement Act 1913.

7. *Northern Territory.—*Prior to the transfer of the Northern Territory to the Commonwealth on the 1st January, 1911, the sale and occupation of lands in the Territory were regulated by the Northern Territory Crown Lands Act 1890, the Northern Territory Land Act 1899, and the Northern Territory Tropical Products Act 1904, but from that date the further alienation and occupation of land in the Territory were suspended, pending a complete reorganisation of the system of land settlement by the Commonwealth Government. In December, 1912, an ordinance, cited as the Crown Lands Ordinance 1912, dealing with this question, was made, by which the conditions of land tenure and settlement in the Territory are now determined. Under this ordinance no further alienation of Crown lands is permitted, unless such alienation is in pursuance of existing agreements.

8. *Administration and Classification of Crown Lands.*—In each of the States of the Commonwealth there is now a Lands Department under the direction of a responsible Cabinet Minister, who is charged generally with the administration of the Acts relating to the alienation, occupation, and management of Crown Lands. The administrative functions of most of the Lands Departments are to some extent decentralised by the division of the States into what are usually termed Land Districts, in each of which there is a Lands Office, under the management of a land officer, who deals with applications for selections and other matters generally appertaining to the administration of the Acts within the particular district. In some of the States there is also a Local Land Board or a Commissioner for each district or group of districts. In the Northern Territory the administration of the regulations relating to the occupation and management of Crown lands is in the hands of a Classification Board, consisting of the Director of Lands, the Government Secretary, the Chief Surveyor, and any other officer appointed by the Administrator.

In most of the States, Crown lands are classified according to their situation, the suitability of the soil for particular purposes, and the prevailing climatic and other conditions. The modes of tenure under the Acts, as well as the amount of purchase money

or rent and the conditions as to improvements and residence, may vary in each State according to the classification of the land. The administration of certain special Acts relating to Crown lands has in some cases been placed in the hands of a Board under the general supervision of the Minister; for such purpose, for instance, are constituted the Western Lands Board in New South Wales, the Lands Purchase and Management Board in Victoria, and the Closer Settlement Board in Tasmania.

In each of the States and in the Northern Territory there is also a Mines Department, which is empowered under the several Acts relating to mining to grant leases and licenses of Crown lands for mining and auxiliary purposes. Such leases and licenses are more particularly referred to in a later part of this section. (See § 9.)

Full information respecting lands available for settlement or on any matter connected with the selection of holdings may be obtained from the Commonwealth representative in London, from the Agents-General of the respective States in London, or from the Lands Departments of the various States in the Commonwealth. The administration and classification of Crown lands in each State were more fully dealt with in Year Book No. 2 (pp. 273-6).

### § 3. Tenures under which Crown Lands may be Alienated or Occupied.

**1. Introduction.**—The freehold of Crown lands in the several States of the Commonwealth may now ordinarily be alienated either by free grant (in trust for certain specified purposes), by direct sale and purchase (which may be either by agreement or at auction), or by conditional sale and purchase. Crown lands may be occupied in the several States under a variety of forms of leases and licenses, issued both by the Lands and the Mines Departments.

**2. Classification of Tenures.**—The tabular statement given on pages 251 and 252 shews the several tenures under which Crown lands may be acquired or occupied in each State of the Commonwealth. The forms of tenure are dealt with individually in succeeding parts of this section.

(i.) *Free Grants, Reservations, and Dedications.* The modes of alienation given in this category include all free grants either of the fee simple or of leases of Crown lands. "Free" homesteads in Queensland and Western Australia are not included in this class, these tenures being free in the sense that no purchase money is payable, but not free from residential and improvement conditions. Reservation and dedication, which are ordinarily conditions precedent to the issue of free grants, are also dealt with therein.

(ii.) *Sales by Auction and Special Sales.* This class of tenure includes all methods by which the freehold of Crown lands may be obtained (exclusive of sales under the Closer Settlement and kindred Acts) for cash or by deferred payments, and in which the only condition for the issue of the grant is the payment of the purchase money.

(iii.) *Conditional Purchases.* In this class are included all tenures (except tenures under Closer Settlement and kindred Acts) in which the issue of the grant is governed by the fulfilment of certain conditions (as to residence or improvements) other than, or in addition to, that of the payment of purchase money.

(iv.) *Leases and Licenses.* This class includes all forms of occupation of Crown lands (other than under Closer Settlement and kindred Acts) for a term of years under leases and licenses issued by the Lands Departments. As the terms indicate, the freehold cannot be obtained under these forms of tenure.

### CLASSIFICATION OF TENURES UNDER WHICH CROWN LANDS MAY BE ALIENATED OR OCCUPIED.

New South Wales.	Victoria.	Queensland.
<b>FREE GRANTS, RESERVATIONS, AND DEDICATIONS.</b>		
Free grants in trust Volunteer land grants Reservations and dedications under Land Act 1884 and Mining Act 1906	Free grants in trust and re- servations under Land Act 1901	Free grants in trust Reservations under Land Act 1910 and under State Forests and National Parks Act 1906
<b>SALES BY AUCTION AND SPECIAL SALES.</b>		
Auction sales for cash or on credit After-auction sales Special sales Improvement purchases Purchases of suburban hold- ings, residential leases, week- end leases	Auction sales for cash or on credit Special sales	Auction sales for cash or on credit After-auction sales Special sales Unconditional selections
<b>CONDITIONAL PURCHASES.</b>		
Residential or non-residential conditional purchases Conversion of conditional pur- chase leases, homestead selections, homestead farms, settlement leases, Crown leases, special leases, church and school lands leases Homestead selections	Agricultural allotments, resi- dential or non-residential Grazing allotments, residen- tial or non-residential Selection from grazing area, perpetual or auriferous leases Selection from pastoral leases Mallee agricultural licenses Murray settlements leases Selection purchase leases	Agricultural farms Agricultural homesteads Prickly pear selections Free homesteads
<b>LEASES AND LICENSES.</b>		
Conditional leases Conditional purchase leases Settlement leases Improvement leases Annual leases Residential leases Special leases Snow leases Pastoral leases Scrub leases Inferior lands leases Occupation licenses Western lands leases Homestead farms Suburban holdings Crown leases Leases in Irrigation Areas Week-end leases	Grazing area leases Perpetual leases Mallee leases Licenses of auriferous lands Leases of swamp or reclaimed lands Grazing licenses Leases and licenses for other than pastoral or agricultural purposes State forest and timber re- serve licenses	Grazing homesteads Grazing farms Occupation licenses Special leases Perpetual lease selections Pastoral leases
<b>CLOSER SETTLEMENT SALES, LEASES AND LICENSES.</b>		
Sales by auction Settlement purchase Annual leases Labour settlements	Special sales	Sales by auction Agricultural farms Unconditional selections
<b>MINES DEPARTMENTS' LEASES AND LICENSES.</b>		
Miners' rights Business licenses Authorities to prospect Leases	Mining leases Special licenses Miners' rights Business & residence licenses	Miners' rights Mining leases and licenses Miners' homestead leases

**CLASSIFICATION OF TENURES UNDER WHICH CROWN LANDS MAY BE  
ALIENATED OR OCCUPIED.**

South Australia.	Western Australia.	Tasmania.
<b>FREE GRANTS, RESERVATIONS, AND DEDICATIONS.</b>		
Free grants in trust Reservations and dedications under Crown Lands Act 1915 Artesian leases	Free grants in trust and free leases Reservations under Land Acts 1898 and 1906	Free leases Reservations under Crown Lands Act 1911
<b>SALES BY AUCTION AND SPECIAL SALES.</b>		
Auction sales for cash After-auction sales Sales for special purposes	Auction sales for cash (The right to lease town and suburban lots is sold by auction)	Auction sales for cash or on credit After-auction sales Special sales of residence or business allotments
<b>CONDITIONAL PURCHASES.</b>		
Agreements to purchase Special agreements under Pin- naroo Railway Act	Conditional purchase, resi- dential or non-residential Conditional purchase by direct payment Conditional purchase of small blocks Homestead farms Conditional auction sales Workingmen's blocks	Selection of rural lands Homestead areas Selection in mining areas Conditional auction sales
<b>LEASES AND LICENSES.</b>		
Perpetual leases Miscellaneous leases Miscellaneous grazing and cul- tivation leases Irrigation and reclaimed land leases Special licenses Pastoral leases Leases with right of purchase	Pastoral leases Special leases Quarrying licenses	Grazing leases Miscellaneous leases Timber licenses and leases Occupation licenses Temporary licenses
<b>CLOSER SETTLEMENT SALES, LEASES, AND LICENSES.</b>		
Sales by auction Agreements to purchase Miscellaneous leases Irrigation and reclaimed area leases Village settlements Homestead blocks	Sales by auction Conditional purchases	Special sales Leases with right of purchase
<b>MINES DEPARTMENTS' LEASES AND LICENSES.</b>		
Miners' rights Mining leases Miscellaneous leases Business licenses Occupation licenses Mineral claims Search licenses	Miners' rights Mining leases Miners' homestead leases	Prospectors' licenses Miners' rights Mining leases Miscellaneous licenses

NOTE.—*Northern Territory.*—By the Crown Lands Ordinance of 1912, the only form of tenure under which land may be held in the Northern Territory, exclusive of land held under pre-existing rights, is that of leasehold. See § 7 of this section.

(v.) *Closer Settlement Sales, Leases, and Licenses.* In this division are included all forms of tenure provided for under the various *Closer Settlement Acts*, and also under kindred Acts, such as the *Village Settlements* and *Small Holdings Acts*.

(vi.) *Mines Departments' Leases and Licenses.* The tenures specified include all methods in which Crown lands may be occupied for mining and auxiliary purposes under leases and licenses issued by the Mines Department in the several States.

3. **Limitation of Tenures in New South Wales.**—In October, 1910, it was officially stated that it was the policy of the Government to discontinue the granting of the freehold of Crown lands. Under the Crown Lands Act 1912 this policy was partially given effect to by the discontinuance of the disposal of Crown lands by conditional purchase or as homestead selections, and by the institution of several new forms of tenure, viz., homestead farms, suburban holdings, irrigation farms, and Crown leases.

The first three are leases in perpetuity, while the term of a Crown lease is 45 years.

4. **Tenure of Lands by Aliens.**—In the States of New South Wales, Queensland, South Australia and Tasmania restrictions are imposed upon the tenure of lands by aliens (*i.e.*, persons other than natural-born or naturalised British subjects). In Victoria and Western Australia there are no such restrictions. This matter, however, is subject to the war-time regulations of the Commonwealth.

(i.) *New South Wales.* Under the Crown Lands Consolidation Act 1913, an alien is not qualified to apply for an original homestead selection, original conditional purchase lease, settlement lease, original homestead lease, or original conditional purchase, unless he has resided in New South Wales for one year, and at the time of making application lodges a declaration of his intention to become naturalised within five years. If he fails to become naturalised within that period, the land is forfeited. This residential limit of twelve months does not, however, apply to applicants for homestead farms, Crown leases, suburban holdings, and leases within irrigation areas, but any alien who becomes the holder of any of these tenures must become naturalised within three years after his becoming such holder. Failure to comply with this regulation involves forfeiture of such holding, together with all improvements thereon.

(ii.) *Victoria.* Under the Supreme Court Act 1915 (section 3), every alien friend resident in Victoria may acquire, either by grant from the Crown or otherwise, both real and personal property.

(iii.) *Queensland.* Under the Land Act 1910 (section 59b and 62) an alien cannot apply for any land in Queensland unless he obtain a certificate that he is able to read and write from dictation, words in such language as the Minister for Lands may direct. If he acquire a selection he must within five years of such acquisition become a naturalised subject.

(iv.) *South Australia.* In South Australia, Asiatics are disqualified from holding perpetual leases of lands in irrigation areas under Section 19 of the *Irrigation and Reclaimed Lands Act 1914*.

(v.) *Western Australia.* In this State aliens are under no disability as regards the acquisition of the freehold of lands already alienated. Every application to acquire Crown lands, whether by a British subject or an alien, is subject to the approval of the Minister for Lands, with an appeal to the Governor-in-Council.

(vi.) *Tasmania.* Under the Aliens Act 1861 (section 2), aliens cannot hold real estate. An alien, if the subject of a friendly State, may, however, occupy lands for any term not exceeding twenty-one years.

(vii.) *Northern Territory.* No restrictions are imposed upon the tenure of lands by aliens, excepting that under the Mining Act 1903, Asiatic aliens are disqualified from holding gold or mineral leases.

#### § 4. Free Grants, Reservations, and Dedications.

1. **Introduction.**—Although free grants of Crown lands were virtually abolished as far back as 1831, the Land Acts of all the States now contain provisions under which the free alienation or occupation of Crown lands for certain specified purposes—comprising generally charitable, educational, and public purposes—is allowed. In all the States, also, Crown lands may be excepted from sale and reserved to the Crown or dedicated for various public and special purposes. Generally, reservation and dedication are conditions precedent to the issue of a free grant. In addition to reservations of a permanent nature, temporary reservations are also made, but these are, as a rule, subject to considerable fluctuations in area by reason of withdrawals, renotifications, and fresh reservations.

The following table shews the area for which free grants were issued and the areas permanently reserved or dedicated in each State during 1901, and from 1912 to 1916 inclusive:—

#### PARTICULARS OF FREE GRANTS, RESERVATIONS, AND DEDICATIONS, 1901 AND 1912-16.

Year.	N.S.W.	Victoria.*	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
FREE GRANTS.							
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1901 ...	282	7	425	5	156	10†	885
1912 ...	3,805	358	283	173	2,663	3,054	10,336
1913 ...	2,256	62	1,805	42	106	118	4,389
1914 ...	1,888	290	295	33	17	223	2,746
1915 ...	1,596	96	1,271	22	3	172	3,160
1916 ...	1,679	26	18	6,556	1	17	8,297
RESERVATIONS AND DEDICATIONS.							
1901 ...	1,595	19,278	811,200	†	189,856	4,231	1,026,160§
1912 ...	1,915	3,686	250,372	13,975	724,757	14,402	1,009,107
1913 ...	1,370	8,135	...	35,382	128,229	21,811	194,927
1914 ...	1,430	5,303	...	16,120	502,167	6,718	531,738
1915 ...	512	2,280	103,494	46,738	173,155	27,066	353,245
1916 ...	2,426	6,482	8,251	21,390	157,601	1,602	197,752

\* Including both permanent and temporary reservations and dedications.

† Free leases. ‡ Not available. § Exclusive of South Australia. || Including 222 acres reserved for recreation grounds.

2. **New South Wales.**—Crown lands may be reserved or dedicated for certain charitable, educational, and public purposes specified. No promises of dedication for religious purposes were made after the 11th May, 1880, on which date a resolution against any further such grants was passed by the Legislative Assembly. Volunteer Land Office Certificates ceased to be operative after the 31st January, 1912. All cases have now been dealt with.

(i.) **Reservations.** In addition to the reservations referred to above, Crown lands may also be temporarily reserved as sites for cities, towns, or villages, and may be reserved for mining purposes. Crown lands within one mile of any made or projected railway may be temporarily reserved from sale, and any Crown lands may be reserved from sale for the preservation and growth of timber. Further, Crown lands may be reserved by notification in the *Gazette* from being sold or let upon lease or license, in such particular manner as may be specified, or may be reserved from sale or lease generally.

(ii.) *Areas Granted and Reserved, 1916-17.* During the financial year 1916-17, the total area for which free grants were prepared was 2066 acres, including grants of 2063 acres of land resumed under the 12th clause of the Public Roads Act 1902. During the same period 779 acres were dedicated and permanently reserved, the number of separate dedications being 74.

On the 30th June, 1917, the total area temporarily reserved was 25,729,121 acres, of which 6,133,771 acres were for travelling stock, 5,322,406 acres for forest reserves, 1,498,352 acres for water, 1,246,299 acres for mining, and the remainder for temporary commons, railways, recreation and parks, and miscellaneous purposes.

3. **Victoria.**—Under Section 10 of the Land Act 1901, the Governor is authorised to reserve Crown lands, either temporarily or permanently, from sale, lease or license, for any public purpose whatever.

During the year 1916 three free grants, comprising an area of 26 acres, were issued. During the same year reservations of both a permanent and temporary nature, comprising an area of 6482 acres, were made; of this area 222 acres were reserved for recreation grounds.

4. **Queensland.**—Under the Land Act 1910, the Governor-in-Council may grant in trust, or reserve from sale, or lease, temporarily or permanently, any Crown lands required for public purposes.

(i.) *Reservations.* Under Section 2 of the State Forests and National Parks Act 1906, the Governor-in-Council may permanently reserve any Crown lands and declare them to be a State Forest or a National Park.

(ii.) *Areas Granted and Reserved, 1916.* During the year 1916 there were 2 free grants issued for a total area of 18 acres. During the same period the area reserved was 8251 acres in excess of areas cancelled. The total area reserved up to the end of the year 1916 was 13,548,779 acres.

5. **South Australia.**—Under Section 7 (d) of the Crown Lands Act 1915, the Governor is empowered to dedicate by proclamation any Crown lands for various charitable, educational and public purposes, and may, at any time after dedication, grant the fee simple of such lands to secure the use thereof for the purpose for which they were dedicated.

(i.) *Reservations.* Under Section 7 (f) of the same Act, the Governor may by proclamation reserve any Crown lands (i.) for the use of aborigines, (ii.) for the purposes of military defence, (iii. and iv.) for forest or travelling stock reserves, (v.) for public recreation grounds, (vi.) for railways or tramways, (vii.) for park lands, and (viii.) for any other purpose he may think fit.

(ii.) *Artesian Leases.* Under special circumstances free leases of pastoral lands may be granted to discoverers of artesian wells.

(iii.) *Areas Granted and Reserved, 1916.* During the year 1916 there were 22 free grants issued for a total area of 6556 acres. During the same year 131 reserves, comprising 21,390 acres, were proclaimed.

6. **Western Australia.**—Under Section 39 of the Land Act 1898, as amended by Section 27 of the Act of 1906, the Governor may reserve any Crown lands which may be required for religious, charitable, or public purposes. These reservations may be either temporary or permanent.

During the year 1916, 1 free grant containing 1 acre was issued, while the area reserved was 157,601 acres.

7. **Tasmania.**—Under Section 11 of the Crown Lands Act 1911, the Governor may reserve any Crown lands for the purposes therein specified. The lands are ordinarily leased for a period of ninety-nine years at a peppercorn rental.



During the year ending 31st December, 1916, there were 5 free leases, comprising an area of 17 acres, issued. During the same period 242 acres were reserved, 116 acres being reserved for stock-resting purposes, 5 acres for cemetery purposes, 120 acres for recreation grounds, and 1 acre for other municipal purposes. The total area permanently reserved to the end of the year 1916 was 1,112,026 acres.

### § 5. Sales by Auction and Special Sales.

1. **Introduction.**—In all the States, sales by auction of Crown lands are held from time to time. Notifications of such sales are given in the *Government Gazettes*, together with particulars as to the upset price and conditions of sale. Excepting in the case of South Australia, where land is sold at auction for cash only, the purchase may be either for cash or on credit by deferred payments. In most of the States land may also be purchased by private contract at the upset price, when it has been offered at auction and not sold. In the case of auction sales on credit in the States of Western Australia and Tasmania, certain improvement conditions are imposed, and such sales are therefore classed for the purposes of this article among *Conditional Purchases*. (See § 6.) In most of the States comparatively small areas of Crown lands may be sold without competition under special circumstances. Sales by auction and special sales under Closer Settlement Acts are referred to in a later part of this section. (See § 8.)

2. **New South Wales.**—Under the Crown Lands Act, lands not exceeding in the aggregate 200,000 acres for the whole State may be sold by auction during any one year. The sales are notified in the *Gazette* not less than one month before the day of sale. The upset prices may not be less than £8 an acre for town lands; £2 10s. for suburban lands; and other lands fifteen shillings. Town lands may not be sold in areas exceeding half-an-acre; suburban lands in areas exceeding twenty acres; and country lands in areas exceeding 640 acres. A deposit of 25 per cent. on the purchase money must be paid at the sale, and the balance in ordinary circumstances within three months. In the case of town or suburban lands, or portions of less than 40 acres, the Minister may submit the land to sale on deferred payments, in which case the balance is spread over a fixed period (not exceeding 5 years) and is payable in annual instalments with 5 per cent. interest.

A fuller description of the conditions under which land may be purchased at auction may be found in the previous issues of the Year Book. (See Year Book No. 5, p. 273.)

*Alienation by Auction and Special Sales.* During the year ended the 30th June, 1917, the area of Crown lands sold by auction and special sales for which grants were prepared amounted to 2513 acres, of which 744 acres were sold by auction in 347 lots; 488 acres were sold by after-auction sales in 277 lots; 45 acres were sold as improvement purchases in 108 lots; and 1236 acres were sold as special purchases in 126 lots. The following table gives particulars of Crown lands alienated by auction and special sales during 1901 and for each year from 1912 to 1917 :—

NEW SOUTH WALES—AUCTION AND SPECIAL SALES, 1901 and 1912-17.

Year.	Auction and After-auction Sales.	Improvement Purchases.	Special Sales.	Total.	
				Area.	Price.
	Acres.	Acres.	Acres.	Acres.	£
1901* ...	49,074	43	445	49,562	116,562
1912 ...	4,530†	32	2,063	6,625	77,274
1913 ...	3,764†	53	2,739	6,556	58,552
1914 ...	748†	51	2,801	3,600	32,222
1915 ...	501†	49	1,897	2,447	36,411
1916 ...	492	66	2,707	3,265	35,614
1917 ...	900	39	1,120	2,059	39,967

\* Year ended 31st December. Subsequent years to 30th June. † Exclusive of frontages sold under the Centennial Park Sale Act.

Particulars of total areas alienated are given hereafter. (See § 11.)

3. **Victoria.**—Lands specially classed for sale by auction, and any land in any city, town, or borough, may be sold by auction in fee simple, not exceeding 100,000 acres in any one year, at an upset price of £1 an acre, or at any higher price determined. The purchaser must pay the survey charge at the time of the sale, together with a deposit of  $12\frac{1}{2}$  per cent. of the whole price; the residue is payable in equal half-yearly instalments, not exceeding forty in number, according to the amount, with interest at the rate of 4 per cent. per annum.

(i.) *Special Sales without Competition.* Detached strips of land not exceeding twenty acres may be sold at a valuation to the owner of the adjoining freehold in cases somewhat similar to those specified above in respect to Crown lands in New South Wales.

(ii.) *Areas Sold at Auction and by Special Sales.* The following table gives particulars of auction sales and special sales for the year 1901 and from 1912 to 1916:—

**VICTORIA—AUCTION AND SPECIAL SALES, 1901 and 1912-16.**

Particulars.	1901.	1912.	1913.	1914.	1915.	1916.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Country lands ... ..	4,079	1,178	1,196	983	818	625
Town and suburban lands ... ..	2,127	1,412	1,278	1,273	1,276	622
Special sales ... ..	846	1,530	1,731	1,449	1,193	814
Total ... ..	7,052	4,120	4,205	3,705	3,287	2,061

Particulars of total areas alienated are given hereafter. (See § 11.)

4. **Queensland.**—Up to 31st December, 1916, the Minister might, with the approval of the Governor-in-Council, cause any Crown lands to be offered for sale by auction. Town or suburban lands might be under either freeholding or perpetual lease tenure. The notification must specify the amount of deposit, and the term for payment of the balance of the money, which term might not exceed ten years. The upset price might not be less than £8 per acre for town lands, £2 per acre for suburban lands, and 10s. per acre for country lands. Since the close of the year 1916, the perpetual lease tenure only is available.

(i.) *After-auction Sales.* The notification of lands for sale by auction might declare that any lands therein mentioned, which had been offered at auction, but not sold or withdrawn, should be open to purchase at the upset price by the first applicant. The price might be paid in the same instalments and at the same periods as if the land had been bought at the auction.

(ii.) *Special Sales without Competition.* Land might be sold without competition to the holder or holders of adjoining lands at a price to be determined by the Land Court, under circumstances similar to those specified above in the case of New South Wales. When the holder of any land proved that, owing to danger from floods or other reasons, it was unsafe to reside on his holding, he might be granted, on payment of a price determined by the Land Court, an area not exceeding ten acres out of the nearest convenient and available Crown lands. Perpetual leasehold is now an alternative tenure.

(iii.) *Areas Sold at Auction, after Auction, and by Special Sales.* The following table shews the areas sold at or after auction, and by special sales, during the year 1901 and from 1912 to 1916:—

**QUEENSLAND.—AUCTION AND SPECIAL SALES, 1901 and 1912-16.**  
(FREEHOLDING TENURES.)

Particulars.				1901.	1912.	1913.	1914.	1915.	1916.
				Acres.	Acres.	Acres	Acres.	Acres.	Acres.
Town	...	...	...	334	646	608	446	149	...
Suburban	...	...	...	793	1,015	741	923	541	...
Country—									
Ordinary sales	...	...	...	52,132	4,733	8,770	5,260	2,623	...
Special sales	...	...	...	55	200	835	87	79	108
Total	...	...	...	53,314	6,594	10,954	6,716	3,392	108

Particulars of total areas alienated are given hereafter. (See § 11.)

During 1916, there were in Queensland auction sales, under perpetual lease, of 296 acres for town areas and 1276 acres for suburban areas, a total of 1572 acres.

(iv.) *Unconditional Selections.* This form of tenure is similar to that of a sale by auction with deferred payment. The minimum price for the land is 13s. 4d. an acre, payable in twenty annual instalments, and the maximum area granted to the applicant is 1280 acres. A deed of grant may be obtained upon payment of the purchase money.

The following table shews the number and area of unconditional selections for which applications were accepted during the year 1901 and from 1912 to 1916:—

**QUEENSLAND.—UNCONDITIONAL SELECTIONS, 1901 and 1912-1916.**

Particulars.				1901.	1912.	1913.	1914.	1915.	1916.
Number	...	...	...	151	51	41	48	35	8
Area	...	...	Acres	24,322	14,578	6,603	12,081	5,639	3,035
Rent	...	...	£	1,180	565	266	448	213	103

5. *South Australia.*—The following lands may be sold by auction for cash:—(a) Special blocks. Any single section of Crown lands which may be surrounded by lands sold or contracted to be sold, and any section (not exceeding 100 acres in area) which may be required for the establishment of any industry. (b) Crown lands which have been offered for perpetual lease, and not taken up for two years. (c) Town lands. (d) Suburban lands. The upset price is determined by the Commissioner, and 20 per cent. of the purchase money must be deposited at the time of sale, and the residue paid within such a time as the Commissioner may allow.

(i.) *After-auction Sales.* All Crown lands except town or suburban lands offered at auction and not sold remain open for leasing or sale under agreement, or may be sold by private contract for cash at the upset price.

(ii.) *Sales for Special Purposes.* The Governor may, on the application of the purchaser or lessee under any of the Crown Lands Acts, grant two acres of the land comprised in such agreement or lease to trustees, to be used for any public or charitable purposes, or he may grant not over one acre of land, comprised in such agreement, as a site for a shop, mill, or post office. The purchase money for such land must be paid at the time of application.

(iii.) *Areas Sold for Cash.* The following table shews the areas sold for cash during the year 1901 and from 1912 to 1916. The total areas sold under all types of sale are shewn in a later part of this section. (See § 11.)

## SOUTH AUSTRALIA—AUCTION AND SPECIAL SALES, 1901 and 1912-1916.

Year ... ..	1901.	1912.	1913.	1914.	1915.	1916.
Area in acres ... ..	11,814	277,665	106,432	51,248	29,081	30,799

6. **Western Australia.**—Surveyed town lots notified in the *Gazette* as open for sale, were sold by public auction at a prescribed upset price up to 18th October, 1911, since which date, however, all town lands have been withdrawn from sale and are now granted under lease only. In the case of suburban lands, the purchaser must carry out certain improvements, which are more particularly referred to later. (See § 6, *Conditional Purchases*.)

*Areas Sold by Auction.* The following table shews the areas of town and suburban lands sold at auction during the year 1901 and from 1912 to 1917 :—

## WESTERN AUSTRALIA—AUCTION SALES, 1901 and 1912-1917.

Year ... ..	1901.	1912. <sup>1</sup>	1913. <sup>1</sup>	1914. <sup>1</sup>	1915. <sup>1</sup>	1916. <sup>1</sup>	1917. <sup>1</sup>
Area sold ... Acres	856	1,359	1,087	890	1,396	419	543
Number of Allotments	1,366	705	530	263	353	102	144

1. For the year ended 30th June.

Particulars as to total areas alienated are given in a later part of this section. (See § 11.)

7. **Tasmania.**—Any town lands may be sold at auction or by private contract, either for cash or on credit, provided that no such lands may be sold on credit if the price is less than £15. Rural lands may also be sold at auction or by private contract, but lots of first-class land may not be sold on credit if less than fifteen acres in area. In the case of sales on credit both of town and rural lands, improvement conditions are imposed, and such sales are therefore classified for the purposes of this article as *Conditional Purchases*. (See § 6.)

(i.) *After-auction Sales.* All rural lands and town lands, not within five miles of any city, which have been offered at auction and not sold, may be purchased by private contract at the upset price, and subject to the conditions on which they were offered at auction.

(ii.) *Sale of Land in Mining Towns.* The holder of a residence or business license, who is in occupation and is the owner of buildings and improvements upon the area licensed of a value equal to the upset price of such area, is entitled to purchase not more than half an acre in area. The areas may be sold on credit.

(iii.) *Areas Sold for Cash.* The following table shews the areas sold for cash during the year 1901 and from 1912 to 1916 :—

## TASMANIA—AUCTION AND SPECIAL SALES, 1901 and 1912-1916.

Year ... ..	1901.	1912.	1913.	1914.	1915.	1916.
Area in acres ... ..	1,915	2,026	383	2,260	339	170

Particulars of total areas alienated are given in a later part of this section. (See § 11.)

## § 6. Conditional Purchases.

1. **Introduction.**—In all the States of the Commonwealth<sup>1</sup> the freehold of the land may be acquired under what are known as systems of conditional purchase by deferred payments of half-yearly or yearly instalments. Certain conditions, generally as to residence and improvements, have to be complied with before the freehold is granted, but these conditions are usually of a light nature and are inserted chiefly with the object of guaranteeing that the occupier will become of benefit to the community by making a reasonable effort to render his holding wealth-producing. Though there is a considerable similarity between some of the forms of tenure in the several States, the terms and conditions vary greatly in detail. As a rule a lease or license for a certain period is first issued to the selector, and upon fulfilment of the prescribed conditions and payment of the full amount of purchase-money the freehold is conveyed to him. In Queensland<sup>2</sup> and Western Australia "free" homesteads may be acquired. Although under these tenures no purchase-money is payable, the grant is conditional on the performance of residential and improvement conditions; these tenures are therefore included here with conditional purchases rather than with free grants.

2. **New South Wales.**—The following are the methods by which land may be alienated by conditional purchase:—(i.) Residential conditional purchase; (ii.) non-residential conditional purchase; (iii.) conversion of certain holdings into conditional purchase; and (iv.) homestead selections.

A description of the conditions under which land may be taken up under this form of tenure is given in previous issues of the Year Book. (See No. 6, p. 277.)

During the year ended the 30th June, 1917, deeds of grant were prepared on the completion of conditional purchases for 357,828 acres, making the total number of conditional purchases in existence at the end of the financial year 88,498 for a total area of 18,693,915 acres. The following table gives particulars of conditional purchases in 1901 and from 1912 to 1917 :—

**NEW SOUTH WALES.—CONDITIONAL PURCHASES, 1901 and 1912 to 1917.**

Year.	Applications Made.		Applications Confirmed.		Areas for which Deeds have been Issued.	
	Number.	Area.	Number.	Area.	During the Year. <sup>2</sup>	To end of Year.
		Acres.		Acres.	Acres.	Acres.
1901	2,277	549,898	1,555	360,910	500,554	4,212,189
1912 <sup>1</sup>	1,258	190,969	1,099	175,004	671,564	15,232,355
1913 <sup>1</sup>	783	103,844	839	105,167	406,019	15,638,374
1914 <sup>1</sup>	512	65,306	554	67,534	322,556	15,960,930
1915 <sup>1</sup>	362	47,175	287	35,249	304,012	16,264,942
1916 <sup>1</sup>	216	22,495	183	23,552	307,016	16,571,958
1917 <sup>1</sup>	168	25,761	108	13,025	357,828	16,929,786

1. Year ended 30th June. 2. Exclusive of exchanges under the Crown Lands Act 1895.

Further particulars as to the total areas alienated and in process of alienation are given hereinafter. (See § 11.)

During the year ended 30th June, 1917, there were 2 original and 35 additional homestead selections applied for, comprising an area of 3970 acres. During the same period the total number of applications confirmed was 5, comprising 1337 acres, and 3585 homestead selections and grants, comprising an area of 1,256,036 acres, were in existence on the 30th June, 1917. This tenure is now practically superseded by the Homestead Farm tenure. Further particulars for previous years are given in a later part of this section. (See § 11.)

1. Except Queensland since 1916. 2. Prior to 1st January, 1917.

3. **Victoria.**—The freehold of agricultural and grazing lands may be acquired by conditional purchase under the following tenures:—(i.) Agricultural, grazing and selection purchase allotments; (ii.) agricultural and grazing allotments by selection from grazing area or perpetual leases; (iii.) Mallee selection purchase leases; (iv.) Murray settlements leases; and (v.) swamp or reclaimed lands purchase leases.

A description of the conditions under which land may be taken up under this form of tenure may be found in previous issues of the Year Book. (See No. 6, p. 278.)

With reference to Murray settlement leases, two settlement areas have been laid out under the Act with due regard to irrigation conditions, viz., those at White Cliffs and Nyah, and at the former place a dry farm area has also been subdivided. At White Cliffs 6273 acres were subdivided as homestead allotments, and 50,345 acres as dry farm allotments, while at Nyah 1960 acres were subdivided as homestead allotments. No additional subdivision has been made during 1916.

The subjoined table gives particulars shewing the areas selected conditionally during the year 1901 and from 1912 to 1916. A large proportion of the areas shewn has reverted to the Crown in consequence of non-fulfilment of conditions.

**VICTORIA.—AREAS PURCHASED CONDITIONALLY, 1901 and 1912 to 1916.**  
(EXCLUSIVE OF SELECTION IN THE MALLEE COUNTRY.)

Particulars.			1901.	1912	1913.	1914.	1915.	1916.
			Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
With residence	...	...	466,155	97,766	138,955	132,085	112,144	117,180
Without residence	...	...	50,257	16,864	30,392	23,599	15,645	22,485
Total	...	...	516,412	114,630	169,347	155,684	127,789	139,665
No. of selectors	...	...	2,979	1,072	1,548	1,307	883	902

Particulars as to total areas alienated and in process of alienation are given in a later part of this section. (See § 11.)

4. **Queensland.**—The several types of selection under which the freehold might, prior to 1917, have been acquired by conditional purchase are as follows:—(i.) Agricultural farms; (ii.) agricultural homesteads; (iii.) prickly pear selections; and (iv.) free homesteads.

In previous issues of this book may be found the conditions under which land might be selected under this form of tenure. (See No. 6, p. 280.)

Since the close of the year 1916, no selections can be acquired on a freeholding basis, but existing selections are not affected, though they may be converted to perpetual leases if the selectors so desire.

*Number and Area of Conditional Purchases.* The following table shews the number and area of conditional purchases for which applications were accepted in 1901 and from 1912 to 1916:—

**QUEENSLAND.—CONDITIONAL PURCHASES (APPLICATIONS ACCEPTED),**  
1901 AND 1912 TO 1916.

Year.		Agricultural Farms.		Agricultural Homesteads.		Prickly Pear Selections.		Total.	
		Number.	Area.	Number.	Area.	Number.	Area.	Number.	Area.
			Acres.		Acres.		Acres.		Acres.
1901	...	661	160,804	669	155,512	19	48,450	1,349	364,766
1912	...	1,717	614,269	18	3,771	544	628,614	2,279	1,246,654
1913	...	1,477	527,461	24	3,934	548	546,749	2,049	1,078,144
1914	...	1,554	538,844	25	5,927	536	683,000	2,215	1,227,771
1915	...	978	300,302	12	1,913	451	481,258	1,441	783,473
1916	...	399	120,207	5	1,337	203	180,921	607	302,465

During the year 1916, applications were accepted to select agricultural farms to the number of 399 for 120,207 acres, an average area of 301 acres, at an average price of 16s. 10d. per acre. The number of selections and the total area selected are less than the corresponding figures for the previous year by 579 and 180,095 acres respectively. The average area is less by 6 acres, and the average price per acre is 1s. less.

The average area of agricultural homesteads was 267 acres. The average price of the land selected as prickly pear selections during the year was 4s. 7d. per acre, an increase on the previous year of 1s. 10d. per acre.

During the year 1916 no land was opened for selection as free homesteads.

Particulars as to total areas alienated and in process of alienation may be found hereinafter. (See § 11.)

5: **South Australia.**—The types of conditional purchases under which land may be alienated in this State are as follows :—(i.) Agreement to purchase, and (ii.) Agreement under the Pinnaroo Railway Act 1903.

(i.) *Agreement to Purchase.*—Surveyed Crown lands are available for agreement to purchase, as well as for perpetual lease under the Crown Lands Acts of 1915, the purchase money being fixed by the Land Board, and payable in sixty half-yearly payments, including interest at not less than 2 per cent. per annum. The condition as to payment of instalments for land offered under the provisions of Act of 1915 in newly surveyed mallee lands is that no payment is made for the first four years, from the fifth to end of the tenth year, interest only at the rate of 2 per cent. per annum on value of land is payable, the first instalment of purchase money, including interest at the rate of 4 per cent. per annum, being payable at the commencement of the eleventh year. All payments are made in advance, the term of agreement being thereby extended to forty years. If the conditions relating to fencing, vermin destruction, and in some cases to residence, are fulfilled, the purchase may be completed after a term of six years from commencement of the agreement on payment of all principal and interest due. All minerals are reserved to the Crown, and the Crown may resume any part of the land for the purposes of roads, water conservation, mining, etc., compensation being payable to the purchaser for loss occasioned by resumption.

(ii.) *Pinnaroo Railway Lands.* Under the Pinnaroo Railway Act 1903 provision was made for opening up about 1,500,000 acres of good agricultural country in the vicinity of a line from Pinnaroo, adjoining the Victorian border, to Tailem Bend, a distance of eighty-seven miles. These lands are now offered on agreement with covenant to purchase or on perpetual lease under the Crown Lands Act 1915. The railway has been paid for from the proceeds of the land already selected. The conditions of purchase are similar to those stated in par. (i.) above.

The total area held on 30th June, 1917, was 1,096,460 acres; of this area purchase has been completed of 463,699 acres, and 16,179 acres are held on perpetual and right of purchase leases, allotted before the Pinnaroo Railway Act was passed.

(iii.) *Particulars of Conditional Purchases.* The subjoined table gives particulars of the areas alienated by conditional purchase, on fulfilment of the conditions, at the end of 1901 and from 1912 to 1916 :—

**SOUTH AUSTRALIA.—AREAS ALIENATED UNDER AGREEMENTS TO PURCHASE,  
1901 AND 1912 TO 1916.**

Year ... ..	1901.	1912.	1913.	1914.	1915.	1916.
Area in acres ... ..	57,460	51,702	59,670	36,186	55,181	46,098

Particulars as to the total areas alienated and in process of alienation are given in a later part of this section. (See § 11.)

**6. Western Australia.**—The various types of selection under which the freehold can be alienated by conditional purchase in this State are as follows:—(i.) Residential conditional purchase; (ii.) non-residential conditional purchase; (iii.) conditional purchase by direct payment; (iv.) conditional purchase of blocks for vineyards, orchards, or gardens; (v.) conditional purchase of grazing lands; and (vi.) free homestead farms.

A full description of the various conditions under which land may be held under this form of tenure may be found in the previous issues of the Year Book. (See Year Book No. 5, pp. 283 and 284.) The following table shews the area of the selections for which grants were issued, the prescribed conditions having been fulfilled, during the year 1901 and from 1912 to 1917.

**WESTERN AUSTRALIA.—AREAS SELECTED CONDITIONALLY FOR WHICH CROWN GRANTS WERE ISSUED, 1901 and 1912-17.**

Particulars.	1901.	1912. <sup>1</sup>	1913. <sup>1</sup>	1914. <sup>1</sup>	1915. <sup>1</sup>	1916. <sup>1</sup>	1917. <sup>1</sup>
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Free homestead farms	147	83,686	96,435	80,784	62,520	61,395	69,816
Conditional purchases	5,234	97,286	113,885	101,421	144,684	50,845	80,096
Poison land leases ...	...	2,593	6,232	5,357	4,001	5,034	...
Total ...	5,381	183,565	216,552	187,562	211,205	117,274	149,912
Number of holdings	48	998	1,232	994	859	724	897

1. For financial year ended 30th June.

Particulars as to the total areas alienated absolutely, and in process of alienation, are given in a later part of this section. (See § 11.)

*Area Conditionally Alienated.* The following table shews the areas conditionally alienated under various methods of selection during the year 1901 and from 1912 to 1917:—

**WESTERN AUSTRALIA.—AREAS CONDITIONALLY ALIENATED, 1901 and 1912-17.**

Particulars.	1901.	1912. <sup>1</sup>	1913. <sup>1</sup>	1914. <sup>1</sup>	1915. <sup>1</sup>	1916. <sup>1</sup>	1917. <sup>1</sup>
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
<i>Conditional Purchase—</i>							
Deferred payments (with residence)	161,302	791,844	510,195	338,804	164,461	85,957	47,659
(without residence)	46,498	391,397	149,648	88,854	43,203	31,137	20,426
Direct payments (without residence)	1,909	5,661	3,548	985	685	208	146
<i>Free Homestead Farms</i>	63,623	208,791	151,985	112,874	62,140	32,549	21,357
<i>Under the Agric. Lands Purchase Acts</i>	4,295	8,375	10,835	2,451	4,122	1,026	96
<i>Grazing Leases</i>	64,834	568,958	535,382	454,581	227,940	157,712	145,956
<i>Poison Land Leases</i> <sup>2</sup>	9,530	...	...	...	...	...	...
<i>Workmen's Blocks</i> <sup>3</sup>	8	56	4	1	...	1	...
Total ...	351,999	1,970,082	1,411,597	998,850	502,551	308,590	235,640
Number of holdings ...	1,888	4,871	3,771	2,788	1,514	860	637

1. For year ended 30th June. 2. Provisions repealed by Act of 1906.  
3. Closer settlement. (See § 8, 7.)

Particulars as to the total areas in process of alienation are given in a later part of this section. (See § 11.)

**7. Tasmania.**—The various types of conditional purchases in this State are as follows:—(i.) Selection of rural land; (ii.) homestead areas; (iii.) selection in mining



areas; and (iv.) sales by auction on credit, either of town or rural lands. The conditions under which land may be selected under this form of tenure are given in previous issues of the Year Book. (See No. 6, p. 283.)

The following table shews the areas alienated absolutely under systems of conditional purchases and sales on credit, the conditions having been fulfilled, and also shews the areas sold conditionally and the applications for conditional purchases received and confirmed, during the year 1901 and from 1912 to 1916:—

**TASMANIA.—CONDITIONAL PURCHASES, 1901 and 1912 to 1916.**

Particulars.	1901.	1912.	1913.	1914.	1915.	1916.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
<i>Completion of Conditional Purchases</i> <sup>1</sup> ... ..	23,781	39,844	45,937	34,756	39,329	54,668
<i>Sold Conditionally—</i>						
Free Selections ... ..	40,004	91,513	51,622	38,774	42,584	35,716
Homestead Areas ... ..	9,108	199	370	164	100	99
Auction Sales on Credit ... ..	12,961	2,026	1,916	986	3,202	2,235
Other Sales (Town Lands) ... ..	636	1,915	1,037	1,260	740	479
<b>Total...</b> ... ..	<b>62,709</b>	<b>95,653</b>	<b>54,945</b>	<b>41,184</b>	<b>46,626</b>	<b>38,529</b>
<i>Applications—</i>						
Received ... ..	1,444	1,800	1,631	1,515	1,610	842
Confirmed ... ..	768	652	698	543	563	328

1. Including selections and sales on credit.

Particulars of total areas alienated and in process of alienation are given hereinafter. (See § 11.)

## § 7. Leases and Licenses.

1. **Introduction.**—Leases and licenses are issued in all the States and in the Northern Territory for various terms and upon various conditions. In Victoria, Queensland, South Australia, and the Northern Territory perpetual leases are issued for an indefinitely long period upon payment of an annual rent, while in all the States leases or licenses of comparatively large areas may be obtained for pastoral purposes. Provision has also been made in all the States for convenient forms of leases and licenses for various special purposes, and also for special classes of lands. The leases and licenses dealt with below are exclusive of those issued under Closer Settlement and kindred Acts, and also of those issued for mining and auxiliary purposes. (See §§ 8 and 9.)

2. **New South Wales.**—The following are the various types of leases and licenses issued in this State:—(i.) Conditional leases; (ii.) conditional purchase leases; (iii.) settlement leases; (iv.) improvement leases; (v.) annual leases; (vi.) residential leases; (vii.) special leases; (viii.) snow leases; (ix.) pastoral leases; (x.) scrub leases; (xi.) inferior lands leases; (xii.) occupation licenses; (xiii.) Western lands leases; (xiv.) homestead farm leases; (xv.) suburban holdings leases; (xvi.) Crown leases; (xvii.) irrigation farm leases; (xviii.) week-end leases; (xix.) leases of town lands; (xx.) returned soldiers' special holdings.

A description in detail of the conditions which govern the issue of these various leases and licenses may be found in previous editions of the Year Book. (See Year Book No. 6, p. 285.)

On the 30th June, 1917, there were 58,013 leases and licenses current under the Lands Department and the Western Land Board, comprising 117,015,359 acres of Crown lands. Of these leases there were 54,975, comprising 41,461,163 acres, in the Eastern and Central Divisions; and 3058, comprising 75,554,196 acres, in the Western Division.

The following table shews the areas held under various descriptions of leases and licenses at the end of the year 1901, and at the end of 1913-14 and following financial years, and also the area and rental of leases current on the 30th June, 1917 :—

**NEW SOUTH WALES.—AREAS OCCUPIED UNDER LEASES AND LICENSES,  
1901 AND 1913-1917.**

Leases and Licenses.	1901.	1913-14.	1914-15.	1915-16.	1916-17.	
					Area.	Rent.
	Acres.	Acres.	Acres.	Acres.	Acres.	£
Pastoral ... ..	44,805,221	1,137,095	1,136,475	1,136,475	1,136,475	734
Outgoing pastoral leases ...	—	1,061,240	964,081	857,313	802,941	7,444
Western land leases & licenses	—	*74,434,751	*74,197,826	*73,755,143	*73,693,368	*90,901
Occupation { (i.) Ordinary	25,812,215	5,923,013	5,672,117	5,400,305	5,163,417	8,982
licenses { (ii.) Preferential	12,985,651	1,487,289	1,304,376	1,204,845	1,184,341	6,569
Homestead leases ...	10,953,388	388,378	351,374	351,374	351,374	614
Condit'l. leases—(i.) Gazetted	13,014,055	15,688,322	15,995,625	15,663,382	15,226,444	192,945
(ii.) Not gazetted (under provi-						
sional rent) ...	966,887	110,549	65,477	33,323	43,068	359
Conditional purchase leases ...	—	579,108	549,772	515,312	457,173	14,844
Settlement leases ...	3,468,675	6,591,911	6,316,739	5,167,063	4,730,130	58,615
Improvement " ...	5,551,050	5,448,966	5,181,979	4,802,058	4,686,246	34,364
Annual " ...	6,755,942	3,705,570	3,184,830	2,891,573	2,649,284	20,408
Scrub " ...	1,535,415	2,053,634	1,991,066	1,854,648	1,812,694	6,822
Snow land " ...	79,582	52,970	11,549	6,069	10,909	173
Special " ...	124,377	622,079	648,509	647,916	650,384	36,837
Inferior land " ...	288,530	104,674	104,524	75,451	75,451	288
Artesian well " ...	358,071	71,680	71,680	71,680	61,440	138
Blockholders' " ...	—	1	1	1	1	6
Residential leases (on gold and						
mineral fields) ...	5,751	13,353	13,366	13,435	13,365	1,646
Church and school lands ...	97,207	4,384	4,082	4,078	3,859	376
Permissive occupancies†	118,634	1,203,244	1,409,502	1,041,890	1,009,090	10,047
Prickly pear leases ...	—	50,187	47,399	47,316	45,423	538
Crown lease ...	—	880,785	1,563,684	1,896,765	2,134,446	24,845
Homestead farms ...	—	450,499	748,918	969,453	1,036,685	872
Suburban holdings ...	—	22,114	30,717	34,110	36,631	4,246
Week-end leases ...	—	—	—	—	55	40
Leases of town lands ...	—	—	—	—	16	56
Returned soldiers' special	—	—	—	—	639	152
holdings... ..	—	—	—	—	—	—
<b>Total under Lands Dept.</b>						
<b>and Western Land Board</b>	<b>126,921,161</b>	<b>122,085,796</b>	<b>121,565,598</b>	<b>118,640,977</b>	<b>117,015,359</b>	<b>523,961</b>

\* Includes Permissive Occupancy.

† Permissive Occupancies in the Western Division not included.

The total annual rent derived from the leases and licenses issued by the Lands Department and the Western Lands Board amounted to £523,961, or an average of 1.07 pence per acre. Particulars regarding leases and licenses issued by the Mines Department are given in a later part of this section. (See § 9, *Occupation of Crown Lands for Mining Purposes*.)

3. *Victoria*.—The various types of leases and licenses (exclusive of Closer Settlement and Mines Department leases and licenses) which may be issued in this State are as follows:—(i.) Grazing area leases; (ii.) selection purchase leases; (iii.) perpetual leases; (iv.) Mallee perpetual leases; (v.) licenses of auriferous lands; (vi.) swamp or reclaimed lands leases; (vii.) grazing licenses; (viii.) leases and licenses for other than pastoral purposes; and (ix.) State forests and timber reserves licenses.

A description in detail of the conditions which govern the issue of these various leases and licenses may be found in the previous issues of the Year Book. (See Year Book No. 5, pp. 291-2.)

*Areas held under Leases and Licenses.* The following statement shews the areas of Crown lands occupied under leases and licenses at the end of the year 1901, and from 1912 to 1916 :—

**VICTORIA.—OCCUPATION OF CROWN LANDS UNDER LEASE OR LICENSE,  
1901 AND 1912-16.**

Tenure.	Area in Acres.					
	1901.	1912.	1913.	1914.	1915.	1916.
Pastoral Leases ... ..	39,450					
Grazing Area Leases... ..	2,338,649	2,869,095	2,747,571	2,648,281	2,575,480	2,502,556
Grazing Licenses—						
Land Acts 1890-91 ... ..	5,908,985					
Land Acts 1901 (exclus. of Mallee) ... ..		5,777,386	5,291,179	5,437,929	5,254,997	4,647,510
Mallee Lands ... ..		5,016,456	4,694,213	4,851,246	4,868,746	4,974,132
Auriferous Lands (Licenses)... ..	377,427	92,873	86,667	82,082	79,618	77,393
Swamp Lands (Leases) ... ..	4,200	3,851	3,900	3,868	3,824	3,825
Perpetual Leases ... ..	8,137	7,859	8,407	9,344	8,182	7,629
Mallee Pastoral Leases ... ..						
Mallee Allotment Leases ... ..	7,980,592	114,287				
Perpetual Leases under Mallee Lands						
Acts 1896-1901 ... ..	448,842	561,214	398,274	293,716	244,765	220,914
Wattles Act 1890 ... ..	4,427					
<b>Total</b> ... ..	<b>17,110,709</b>	<b>14,443,191</b>	<b>13,230,211</b>	<b>13,325,416</b>	<b>13,035,612</b>	<b>12,433,959</b>

4. **Queensland.**—In this State Crown lands may be occupied under the following types of leases and licenses:—(i.) Grazing homesteads; (ii.) grazing farms; (iii.) occupation licenses; (iv.) special leases; (v.) perpetual lease selections; and (vi.) pastoral leases. An applicant for a grazing homestead or grazing farm may not hold more than 60,000 acres, and the term of the lease may not exceed 28 years.

(i.) *Grazing Homesteads.* As at 31st December, 1916, lands opened for grazing selections were available for fifty-six days as grazing homesteads only. Personal residence was necessary for the first five years, and prior to the expiration of such period or the earlier death of the lessee, a grazing homestead could be assigned or transferred. Without the special permission of the Minister it could not be mortgaged during the five years except to the Agricultural Bank; thereafter the lease was subject to the condition of occupation. Since 1st January, 1917, grazing homesteads are subject to personal residence by the selector during the whole term of the lease, but the restrictions on assignment or transfer still operate only during the first five years.

(ii.) *Grazing Farms.* In order to obtain priority of claim the applicant may tender an annual rent higher than the notified one, for the first seven years. As soon as the land is fenced the selector becomes entitled to a lease, and may thereafter mortgage the same. The lease is subject to the condition of occupation during the whole term. The Crown may resume the whole or part of the lease.

Particulars of grazing farms and grazing homesteads are given in the following paragraph:—

(iii.) *Grazing Farms, Homestead and Scrub Selections.* The following table shews the number of grazing farms, grazing homesteads, and scrub selections, for which applications were accepted in 1901 and from 1912 to 1916:—

**QUEENSLAND.—GRAZING FARMS, HOMESTEAD AND SCRUB SELECTIONS,  
1901 AND 1912-16.**

Year.	Grazing Farms.		Grazing Homesteads		Scrub Selections.		Total.	
	No.	Area.	No.	Area.	No.	Area.	No.	Area.
		Acres.		Acres.		Acres.		Acres.
1901 ...	247	1,371,283	47	290,785	19	48,450	313	1,710,518
1912 ...	223	1,834,920	348	3,860,887	...	...	571	5,695,807
1913 ...	230	2,681,948	317	3,698,600	...	...	547	6,380,548
1914 ...	272	3,380,918	288	3,462,488	...	...	560	6,843,406
1915 ...	222	2,461,836	275	3,984,517	...	...	497	6,446,353
1916 ...	112	1,412,652	247	3,065,096	...	...	359	4,477,748

The average rent in 1916 was .74d. per acre for grazing farms and 1.28d. per acre for grazing homesteads.

Particulars of total areas held under leases and licenses are given in a later part of this section. (See § 11.)

(iv.) *Occupation Licenses.* Annual licenses are granted to occupy Crown lands which have been declared open for such occupation by notification in the *Gazette*. The rent is as specified by the notification or as bid by the licensee, but the Minister may by notice before the 1st September in any year increase the rent. The total number of licenses in force at the end of the year 1916 was 2456, comprising an area of 69,718 square miles, the total rent being £54,659. Particulars of the area held under license for previous years are given in a later part of this section. (See § 11.)

(v.) *Special Leases.* Leases of any portion of Crown land may be issued for a term not exceeding thirty years to any person for any manufacturing, industrial, business or recreation purposes. Leases for a similar term may be issued for any country lands reserved for public purposes and which are infested with noxious weeds.

During the year 1916 there were 121 leases for special purposes granted, comprising an area of 2795 acres, the total annual rent being £400, and there were extant at the end of the year 733 such leases, reserving rents amounting to £3829 per annum. In addition, 44 leases of reserves, aggregating 20,183 acres, were granted at rentals amounting to £259 per annum; the total number of these leases of reserves in force at the end of the year being 291, reserving rents amounting to £1263. Particulars of special leases for previous years are given in a later part of this section. (See § 11.)

(vi.) *Perpetual Lease Selections.* Up to 31st December, 1916, land proclaimed to be open for agricultural farm selection (see § 6, 4) might also be opened for perpetual lease selection, and the latter mode might be conceded priority of application over the former. The rent for the first period of ten years of the lease was  $1\frac{1}{2}$  per cent. on the proclaimed purchase price of the land for agricultural farm selection. The rent for each succeeding period of ten years was determined by the Land Court. Similar conditions of occupation and improvement as were prescribed for agricultural farms were attached to perpetual lease selections. From 1st January, 1917, land opened for agricultural selection may be opened only for perpetual lease selection, and land opened for prickly pear selection may be opened only for perpetual lease prickly pear selection. The rent for the first period of 15 years is  $1\frac{1}{2}$  per cent. of the notified capital value of the land, and for each succeeding period of 15 years may be determined by the Land Court. The conditions of selection are similar to those for the previous tenures of agricultural farms and prickly pear selections.

#### QUEENSLAND.—PERPETUAL LEASE SELECTIONS, 1912 to 1916.

Particulars.			1912.	1913.	1914.	1915.	1916.
Number	...	...	20	12	18	175	294
Area	...	Acres	19,226	10,887	12,991	59,760	114,011
Rent	...	£	212	106	153	973	1,806

(vii.) *Special Licenses.* Licenses to cut timber or to dig for any stone, gravel, earth, shells, or guano, may be issued.

(viii.) *Pastoral Leases.* Up to 31st December, 1916, existing pastoral leases were deemed to be held under the Land Act 1910. Lands open for pastoral lease might be leased for a period not exceeding thirty years. The annual rent, per square mile, for the first ten years must be as notified in the *Gazette*, or in case of competition, bid at auction. If the value of the holding became enhanced by the development of public

works in the neighbourhood, or by the occurrence of minerals on or near the holding, the rent might be redetermined. A new pastoral tenure, as from 1st January, 1917, was introduced by the amending Act of 1916, viz., preferential pastoral lease. Holdings under this tenure are confined to persons with no interests or limited interests in pastoral leases, and priority of application may be obtained by an applicant undertaking to reside on the holding personally during the first seven years.

The following table shews the total areas of pastoral leases occupied under the various Acts at the end of the year 1901 and from 1912 to 1916 inclusive:—

**\* QUEENSLAND.—PASTORAL LEASES OCCUPIED UNDER VARIOUS ACTS,  
1901 AND 1912 TO 1916.**

Particulars.	Area in Square Miles.					
	1901.	1912.	1913.	1914.	1915.	1916.
Pastoral Leases Act 1869 ... ..	39,307	...	...	...	...	...
Crown Lands Act 1884 ... ..	243,586	...	...	...	...	...
Land Act 1897 ... ..	15,046	...	...	...	...	...
Pastoral Leases Act 1900 ... ..	50,076	...	...	...	...	...
Pastoral Holdings New Leases Act 1901 ... ..	...	...	...	...	...	...
Land Act 1902 ... ..	...	...	...	...	...	...
Land Act 1910 ... ..	...	354,843	357,615	353,312	349,838	337,423
<b>Total ... ..</b>	<b>348,015</b>	<b>354,843</b>	<b>357,615</b>	<b>353,312</b>	<b>349,838</b>	<b>337,423</b>

\* Up to the year 1910, resumed parts of pastoral holdings were included in these figures, but since that year they are held under occupation license, and are included in the figures under that head.

The gross area held at the end of the year 1916 for purely pastoral purposes (under *Occupation Licenses and Pastoral Leases*) was 407,141 square miles, at rentals aggregating £338,255 per annum. The area was 13,961 square miles less than that for the previous year, and the rental was £9501 less. The average rent was 16s. 7½d. per square mile, as against 16s. 6½d. for the previous year.

**5. South Australia.**—The following are the various types of leases and licenses which are issued in this State:—(i.) Perpetual leases; (ii.) miscellaneous leases; (iii.) miscellaneous grazing and cultivation leases; (iv.) irrigation and reclaimed swamp leases; (v.) licenses for special purposes; (vi.) leases under the Pastoral Act 1904; and (vii.) leases with right of purchase.

(i.) *Perpetual Leases.* Surveyed Crown lands are available for perpetual leases as well as for agreements to purchase under Crown Lands Acts of 1915. Under the Crown Lands Act of 1888 perpetual leases were granted in perpetuity, and the rent determined for each period of fourteen years, at least twelve months before the expiration of each such period. Under the Crown Lands Act of 1893 the revaluation section was repealed and the rent was fixed in perpetuity, generally at rates varying from 2 per cent. to 4 per cent. per annum on the value of the land as fixed by the Land Board. The condition as to payment of rent of land offered under provisions of the Act of 1915 in newly surveyed mallee lands is that no rent is charged for the first four years, and from the fifth to the end of the tenth year payment is made at the rate of 2 per cent. per annum, the full rate at 4 per cent. becoming due at the commencement of the eleventh year. All minerals are reserved to the Crown, and the Crown may reserve any part of the land for the purposes of roads, water conservation, mining, etc., compensation being payable to the lessee for loss occasioned by resumption.

The conditions under which the other leases and licenses are issued will be found in detail in the previous issues of the Year Book. (See Year Book No. 5, pp. 294 and 295.)

(ii.) *Area held under Lease.* The following table shews the area held under leases and licenses at the end of the year 1901, and from 1912 to 1916:—

**SOUTH AUSTRALIA.—AREA UNDER LEASES AND LICENSES, 1901 and 1912 to 1916.**

Particulars.	1901.	1912.	1913	1914	1915.	1916.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Right of Purchase Leases ...	5,639,519	2,836,346	2,702,210	2,634,685	2,574,640	2,504,143
Perpetual Leases ...	7,115,782	15,070,607	15,048,199	14,569,877	14,943,771	14,851,173
Pastoral Leases ...	68,916,125	96,356,850	96,933,810	96,382,130	95,756,850	95,016,370
Other Leases ...	3,905,729	1,273,350	1,230,105	1,193,767	1,144,683	1,128,630
Total held under Lease ...	85,577,155	115,537,153	115,914,324	115,180,459	114,419,944	113,500,316

6. *Western Australia.*—The following are the various types of leases and licenses issued in this State:—(i.) Pastoral leases; (ii.) permits and licenses to cut timber; (iii.) special leases; and (iv.) licenses for quarrying.

The conditions of tenure with respect to these leases and licenses may be found in the previous issues of the Year Book. (See Year Book No. 5, pp. 296-7.)

*Area Held under Leases and Licenses.* The following table shews the number and area of leases and licenses issued during the year 1901, and from 1912 to 1917:—

**WESTERN AUSTRALIA.—LEASES AND LICENSES ISSUED, 1901 and 1912 to 1917.**

Particulars.	1901.	1912.*	1913 *	1914.*	1915.*	1916.*	1917 *
	Acres	Acres	Acres	Acres.	Acres.	Acres.	Acres.
Pastoral Leases ...	19,909,251	11,245,895	18,135,488	8,365,927	7,630,023	7,489,683	9,436,159
Special Leases ...	149	6,760	3,993	3,382	5,571	1,707	626
Leases in Reserves ...	324	188,444	2,901,238	233,037	196,340	434,455	128,403
Timber Leases and Permits†	109,630	119,000	129,317	20,141	†	†	†
Residential Lots ...	221	18	2	...	...	...	...
Total ...	20,019,575	11,560,117	21,170,038	8,622,487	7,831,934	7,925,845	9,565,187
Number Issued ...	1,466	487	1,918	1,709	1,410	1,105	510

\* For financial year ended the 30th June. † No timber leases granted since 1903.

‡ Timber Leases and Permits are now under the control of the Mines Department.

Particulars as to the total area occupied under leases and licenses are given in a later part of this section. (See § 11.)

7. *Tasmania.*—The several forms of leases and licenses in this State are as follows:—(i.) Grazing leases; (ii.) miscellaneous leases; (iii.) timber licenses; (iv.) occupation licenses; (v.) temporary licenses; and (vi.) timber leases.

The conditions which govern the issue of these leases and licenses are more fully dealt with in the previous issues of the Year Book. (See Year Book No. 5, p. 297.)

*Area held under Leases and Licenses.* The following table shews the areas of Crown lands occupied under leases and licenses at the end of the year 1901 and from 1912 to 1916:—

**TASMANIA.—LEASES AND LICENSES ISSUED, 1901 AND 1912-16.**

Particulars.	1901.	1912.	1913.	1914.	1915.	1916.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Ordinary Leased Land ...	1,280,688	1,245,400	1,280,400	1,400,300	1,452,068	1,434,113
Islands ...	149,165	135,025	134,908	135,000	204,630	207,630
Land Leased for Timber ...	40,768	138,471	160,216	162,631	120,832	146,881
Total ...	1,470,621	1,516,896	1,575,524	1,697,931	1,777,530	1,788,624

8. **Northern Territory.**—The system of land settlement in the Northern Territory has been reorganised by the Commonwealth Government. A New Lands Ordinance was passed in December, 1912, known as the Crown Lands Ordinance 1912, and future disposal of land in the Territory will be made in accordance with this Ordinance, which provides for a leasehold system only, and no further alienation of Crown lands will be permitted, unless such alienation is in pursuance of existing agreements. Under this Ordinance, the classification and control of Crown lands is in the hands of a Board, consisting of the Director of Lands, the Director of Agriculture, and the Chief Surveyor. The classified land is leased in blocks, the maximum area ranging from 300 square miles of first-class pastoral to 1280 acres of first-class agricultural land. Before offering any land for leasing, the Board fixes the annual rental, but every lease is subject to reappraisal of rent at specified periods, viz., every fourteen years in the case of town lands, and every twenty-one years in the case of agricultural and pastoral lands.

Leases under this Ordinance are in perpetuity, except as regards pastoral and miscellaneous leases, the term of which is 21 or 42 years, according to the quality of the land leased.

The lessee must reside on the land leased for a certain period every year, must fence, stock, and cultivate it to the extent prescribed, and must, within two years of the commencement of the lease, establish a home on it. In order to promote settlement in the Territory, the first five thousand blocks of agricultural land taken up on perpetual lease under this ordinance will be rent free during the life of the applicant, or for 21 years from the commencement of the lease, whichever period is longer. By an amending ordinance of 1913, additional powers are given to the Administrator in revoking and granting leases.

The various types of leases, licenses, and permits current are as follows:—(i.) Agricultural leases; (ii.) pastoral leases; (iii.) special leases; (iv.) leases with right of purchase; (v.) tropical products leases; (vi.) leases for horsebreeding stations; (vii.) licenses; and (viii.) pastoral and other permits. (See § 2, 7). The permit system was discontinued at the end of 1911.

*Area held under Lease, License, and Permit.* The following table shews the total area held under lease, license, and permit at the end of the years 1901 and 1912 to 1916:—

**NORTHERN TERRITORY.—AREA HELD UNDER LEASE, LICENSE, OR PERMIT,**

1901 AND 1912-1916.

Particulars.	1901.	1912.	1913.	1914.	1915.	1916.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Right of Purchase Leases ...	1,067	667	667	436	436	436
Pastoral Leases <sup>1</sup> ...	111,476,240	94,329,600	93,748,100	104,370,160	113,813,329	110,560,129
Other Leases <sup>1</sup> ...	1,176,981	1,696,171	1,762,538	88,637	112,862	109,353
Total Leased ..	112,654,288	96,026,438	95,511,305	104,459,233	113,926,627	110,669,918

1. See Table given below.

The following table gives particulars of the areas held under the various types of lease and license as at the end of the years 1915 and 1916, and included in the previous table under the heads of "pastoral leases" and "other leases."

**NORTHERN TERRITORY.—AREA HELD UNDER LEASE, LICENSE, OR PERMIT,  
AT 31ST DECEMBER, 1915 AND 1916.**

Particulars.	1915.		1916.	
	No. of leases	Area in acres.	No. of leases	Area in acres.
(UNDER SOUTH AUSTRALIAN ACTS.)				
Pastoral leases ... ..	234	64,682,880	234	64,682,880
Pastoral permits ... ..	89	12,385,920	80	12,072,370
Annual pastoral leases ... ..	2	63,360	2	63,360
Mixed farming leases ... ..	1	1,280	...	...
Right of purchase leases ... ..	3	436	3	436
Agricultural leases ... ..	20	5,000	15	3,061
Leases, special purposes ... ..	2	10	2	10
Occupation, special licenses and permits	20	50	24	65
Gold-mining leases ... ..	14	209	...	...
Mineral leases ... ..	14	970	...	...
Water leases ... ..	3	1,920	3	1,920

(UNDER CROWN LANDS ORDINANCE, 1912.)

Grazing licenses ... ..	148	30,805,120	124	24,605,440
Pastoral leases ... ..	32	5,896,049	51	9,136,129
Miscellaneous leases ... ..	12	81,754	20	82,032
Agricultural leases (cultivation) ...	8	3,923	9	4,489
Agricultural leases (mixed farming and grazing) ... ..	7	17,648	7	17,648
Town leases ... ..	44	98	59	128
Total ... ..	...	113,946,627	...	110,669,968

### § 8. Closer Settlement.

1. **Introduction.**—In all the States, Acts have been passed authorising the Governments to repurchase alienated lands for the purpose of cutting them up into blocks of suitable size and throwing them open to settlement on easy terms and conditions. Special Acts have also been passed in several of the States authorising the establishment on particular lines of co-operative communities, village settlements, and labour colonies. Lands may be acquired either compulsorily or voluntarily in New South Wales, Victoria, Queensland, and Tasmania, but only voluntarily in South Australia and Western Australia.

The following table gives particulars up to the latest available date of operations under the Closer Settlement Acts for each State and the whole Commonwealth:—

**CLOSER SETTLEMENT.—TOTAL AREAS ACQUIRED AND ALLOTTED UP TO  
30th JUNE, 1917.**

Particulars.	N.S.W.	Victoria.	Qld.	S. Aust.	W. Aust.	Tas.	Cwlth.
Area acquired ... .. acres	839,200	571,953	785,311	742,797	446,804	75,633	3,461,698
Purchasing price ... .. £	3,063,813	4,277,356	1,955,060	2,438,195	421,373	274,563	12,430,360
Farms, etc., allotted { No.	1,622	4,509	2,645	2,682	704*	253	12,415
{ acres	759,753	481,201	587,715	678,393	269,648	68,153	2,844,863

\* Includes only farms for which Crown Grants have not issued.



The following table shews the areas of private lands acquired in each State for the financial year 1900-01, and for each year from 1912 to 1917 :—

**CLOSER SETTLEMENT.—AREAS OF PRIVATE LANDS ACQUIRED,  
1901 and 1912 to 1917.**

Year ended 30th June.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1901 ...	...	28,553	132,760	...	46,624	...	207,937
1912 ...	676,438	515,604	664,363*	619,469	303,469	45,731†	2,825,074
1913 ...	676,439	560,081	664,363*	624,202	446,804	49,476†	3,021,365
1914 ...	685,156	567,687	664,363*	632,715	446,804	60,232†	3,056,957
1915 ...	685,156	564,520	664,363*	611,402	446,804	73,162†	3,045,407
1916 ...	745,883	564,600	664,363*	661,117	446,804	73,320†	3,156,087
1917 ...	747,204	567,943	785,311*	685,217	446,804	75,259†	3,307,738

\* To the preceding 31st December. † Including 10,382 acres of Crown lands.

**2. Government Loans to Settlers.**—For the purpose of promoting pastoral, agricultural, and similar pursuits, and with the object of assisting settlers in erecting buildings and carrying out improvements on their holdings, general systems have been established in all the States, under which financial aid is rendered to settlers by the State Governments. These general systems are more particularly referred to in the section in this book dealing with "Agriculture." In many of the Closer Settlement and similar Acts, however, special provisions have been inserted with the object of lending money to settlers taking up land under these Acts, with which to build homes or effect improvements. The principal features of these provisions are referred to below.

**3. New South Wales.**—Under the Closer Settlement Act of 1901 provision was made for the acquisition of private lands or of Crown lands held under lease, for the purpose of closer settlement. No power of compulsory resumption was conferred by the Act, which was in consequence practically inoperative. Under the Closer Settlement Act of 1904, and subsequent amendments, and the Closer Settlement Promotion Act 1910, the Government is empowered to resume private lands, either by agreement or by compulsory purchase, and to alienate them on favourable terms to persons who desire to settle and make homes for themselves and their families on the soil. Land acquired under the Acts is subdivided into blocks or farms, and by notification in the *Government Gazette* is declared to be a settlement purchase area available for application. The *Gazette* notice also gives all necessary information as to the class and character of the land, and the capital value, area, etc., of each block or farm.

(i.) *Closer Settlement Purchase.* Under this tenure a settler may acquire the freehold of the land under a system of deferred payments. A deposit of  $6\frac{1}{2}$  per cent. of the notified value of the settlement purchase must be lodged with the application, and a similar amount by way of instalment, paid annually until the purchase-money, together with interest at the rate of  $5\frac{1}{2}$  per cent., is paid off. Prior to 1st September, 1917, the deposit and annual instalments ranged from 5 per cent. to 6 per cent., and the interest from 4 per cent. to 5 per cent. Under this system the balance due to the Crown will be paid off in from thirty-one to thirty-eight years, the holding then becoming a freehold. A condition of residence for ten years attaches to every settlement purchase. Under the amending Act of 1909 postponement of the payment of two instalments may be granted by the Minister, subject to the conditions (a) that additional improvements to the value of the amount postponed be made on the land within twelve months, and (b) that interest be paid on the amount postponed. The Minister may also grant extension of

time to pay overdue instalments under certain conditions. The period allowed under any one such extension must not exceed five years, interest being charged on overdue instalments at the rate of 5 per cent. per annum.

(ii.) *Closer Settlement Permissive Occupancies.* The Minister may grant permits to occupy from month to month any lands within a settlement purchase area which remain undisposed of, subject to certain terms and conditions.

(iii.) *Sales by Auction.* Areas within closer settlement districts necessary for township settlement may be set apart by notification in the *Gazette*. Allotments, each of which may not exceed half an acre in extent, within such areas may be sold by auction.

(iv.) *The Closer Settlement Promotion Act 1910.* Under this Act any three or more persons or any one or more discharged soldiers within the meaning of the Returned Soldiers' (Amendment) Act 1917, each of whom is qualified to hold settlement purchases and who desire to purchase from the same owner any private lands may, upon entering into an agreement with the owner and subject to valuation by the Advisory Board and the Savings Bank Commissioners, acquire such lands through the Minister on Closer Settlement conditions. The maximum sum which may be advanced for the purposes of this Act may not exceed £1,000,000 in any financial year.

The following table shews the number and area of farms allotted since the passing of the Act:—

**NEW SOUTH WALES.—OPERATIONS UNDER CLOSER SETTLEMENT  
PROMOTION ACT 1910.**

Year.	Farms Allotted—		
	Number.	Area.	Amount Advanced.
		Acres.	£
1910-11 ... ..	26	10,785	54,181
1911-12 ... ..	209	84,279	418,941
1912-13 ... ..	274	107,791	599,145
1913-14 ... ..	183	62,598	361,351
1914-15 ... ..	95	35,963	201,163
1915-16 ... ..	141	61,626	300,103
1916-17 ... ..	57	28,877	123,330
Total ... ..	985	391,919	2,058,164

(v.) *Areas Acquired and Disposed of.* Up to the 30th June, 1917, thirty-five estates had been opened for settlement under the Closer Settlement Acts.

The following statement gives particulars of the aggregate areas opened up to the 30th June, in each year from 1913 to 1917:—

**NEW SOUTH WALES.—CLOSER SETTLEMENT AREAS, 1913 to 1917.**

Year Ended 30th June.	Areas.			Capital Values.		
	Acquired Lands.	Adjoining Crown Lands.	Total.	Acquired Lands.	Adjoining Crown Lands.	Total.
	Acres.	Acres.	Acres.	£	£	£
1913 ... ..	676,439	87,759	764,198	2,667,203	159,973	2,827,176
1914 ... ..	685,156	89,540	774,696	2,685,660	163,254	2,848,914
1915 ... ..	685,156	89,540	774,696	2,685,660	163,254	2,848,914
1916 ... ..	745,883	91,987	837,870	2,870,116	167,962	3,038,078
1917 ... ..	747,204	91,996	839,200	2,895,638	168,175	3,063,813

The total area thus set apart has been divided into 1683 farms, comprising 811,877 acres, the remaining area being reserved for recreation areas, roads, stock routes, schools, etc.

The following table gives particulars as to the disposal of the farms by closer settlement purchase for the years ended the 30th June, 1913 to 1917 :—

#### NEW SOUTH WALES.—CLOSER SETTLEMENT ALLOTMENTS, 1913 to 1917.

Year.	Farms Allotted by Board to Date.			Total Amount received in respect of Settlement Purchases.	Total Number of Applications received.
	Number.	Area.	Value.		
	No.	Acres.	£	£	No.
1912-13 ...	1,554	724,924	2,767,370	363,425	1,568
1913-14 ...	1,567	734,125	2,806,285	493,795	1,578
1914-15 ...	1,588	742,610	2,834,792	506,073	1,591
1915-16 ...	1,609*	748,573*	2,860,636*	718,660	1,612
1916-17 ...	1,622	759,753	2,905,550	834,485	1,625

\* Including 46 Settlement Purchase Farms of 24,943 acres, with a capital value of £110,094, since converted into Homestead Farms.

Eleven estates, comprising 169,388 acres, and providing for 312 farms, acquired under the Closer Settlement Acts, were handed over during the year 1916-17 for settlement by returned soldiers.

(vi.) *Labour Settlements.* These settlements were founded by the Labour Settlements Acts 1893 and 1894, which were amended and repealed by the Labour Settlements Act 1902. Land might be set apart for lease for a period of 28 years as a labour settlement under the superintendence of a Board of Control. The functions of the Board of Control were to enrol members of the settlement; to make regulations concerning the work to be done; to apportion the work among the members; and to distribute the wages and profits. The Minister was empowered to grant financial assistance to the Board of Control. Only two settlements, those at Bega and Wilberforce, had been established under the Act up to the 30th June, 1917. The Labour Settlement Act 1902 was repealed by the Bega and Wilberforce Labour Settlement Act 1917, which dissolves the Boards of Control, and provides for the exclusive right of the present settler or his representatives to acquire within a specified period the block set down opposite his name in the schedule under the Act as a homestead selection under the Crown Lands Consolidation Act 1913. Particulars are given in the following statement :—

#### NEW SOUTH WALES.—PARTICULARS OF LABOUR SETTLEMENTS, 30th JUNE, 1917.

Settlement.	Date of Establishment.	Area.	Population.				Value of Improvements.	Loans Advanced by the Government.
			Men Enrolled.	Women.	Children.	Total.		
Bega ...	1893	Acres. 1,036	25	29	76	130	£ 3,000	£ 2,420
Wilberforce ...	1893	409	9	10	24	43	1,600	2,479
Total ...	—	1,445	34	39	100	173	4,600	4,899

The Murrumbidgee Irrigation Act 1910 provides for the acquisition of 1,668,000 acres near Narrandera, in Riverina, for irrigation and other purposes in connection with the Burrinjuck Irrigation Scheme. Part of this area has since been made available.

4. *Victoria.*—(i.) *Closer Settlement Act 1915.* The Closer Settlement Act in Victoria is administered by a Board consisting of three persons appointed by the Governor-in-Council, and entrusted with power to acquire, either compulsorily or by agreement, private lands in any part of the State for the purpose of Closer Settlement. The Board may dispose of all lands acquired, either Crown lands or repurchased lands, on conditional purchase leases either as (a) farm allotments not exceeding £2,500 in value, (b) workmen's homes allotments not exceeding £250 in value, and (c) agricultural labourers' allotments not exceeding £350 in value. The price of the land must cover the cost of the original purchase and the cost of all improvements. Land acquired by the Board may also be sold in small areas in fee simple as sites for churches, public halls, butter factories, creameries, recreation reserves, or other public purposes.

The Board may approve of an agreement between an owner and one or more persons to purchase a farm or farms, not exceeding £2,500 in value. On the property being acquired by the Board, the applicant obtains a lease under Closer Settlement conditions.

(a) *Closer Settlement Leases.*—Every conditional purchase lease is for such a term of years as may be agreed upon by the lessee and the Board, and payment must be made with interest at  $4\frac{1}{2}$  per cent. per annum by sixty-three half-yearly instalments, or such lesser number as may be agreed upon. Under the Act postponement of payment of instalments may be granted by the Board up to 60 per cent. of the value of improvements. The lessee must personally reside during eight months in each year on his allotment, and for six years he must carry out prescribed improvements. Thereafter he may, with permission, transfer, assign, mortgage or sublet his allotment. After twelve years, if all conditions have been fulfilled, a Crown grant, with the same residence condition as that contained in the lease, will be issued. In the case of workmen's homes allotments the land must be fenced within one year, and a dwelling-house to the value of at least £50 must be erected within the same time; within two years further improvements must be made to the value of at least £25. As regards agricultural labourers' allotments, a dwelling-house to the value of at least £30 must be erected within one year, and within two years the allotment must be fenced. In the case of workmen's homes and agricultural labourers' allotments, the lessee may at any time transfer, assign or sublet with the consent of the Board.

(b) *Advances to Settlers.*—The Board may make advances for the purpose of fencing and building dwelling-houses, and is empowered to erect dwelling-houses, outbuildings, or improvements on any allotment at a cost not exceeding £500 for any one allotment. Any sum so expended is repayable, with interest added, by instalments extending over a prescribed period, not greater than twenty years. Provision has also been made for deferring payments in case of hardship, as well as for advances (to the extent of 60 per cent. of the value of the improvements) to enable work to be carried on. Special advances may also be granted to purchase wire netting in rabbit-infested districts.

(c) *Loans to Municipalities.* Loans may be made out of the Closer Settlements Fund for the purpose of carrying out any road-making or other public works within the boundaries of an estate.

(d) *Areas acquired and made available for Closer Settlement.* The following statement shows the operations which have taken place in Victoria under the provisions of the Closer Settlement Acts, 1898 to 1915, up to the 30th June, 1901 and 1913 to 1917 :—

### VICTORIA.—CLOSER SETTLEMENT, 1901 and 1913-1917.

(INCLUDING IRRIGATED AREAS.)

Year ended 30th June.	Total Area Acquired by Government to Date.	Total Cost to Date.	How Made Available for Settlement.						Number of Applications Granted to Date.	Total Receipts to Date.	Repayments of Principal to Date.	Area Available for Settlement.
			Farm Allotments.	Workmen's Homes Allotments.	Agricultural Labourers' Allotments.	Town Allotments.	Roads and Reserves.					
	Acres.	£	Acres.	Acres.	Acres.	Acres.	Acres.	No.	£	£	Acres.	
1901	28,553	151,566	28,461	69	—	44	240	193	7,529	—	—	
1913	563,554	4,315,305	498,701	512	3,658	3,564	6,334	3,306	922,842	397,803	64,550	
1914	567,687	4,222,248	500,819	828	8,829	24,903	—	4,112	1,213,593	456,511	60,028	
*1915	567,993	4,230,055	509,454	782	5,111	26,163	—	4,227	1,432,187	528,960	56,525	
1916	568,073	4,230,779	513,281	778	5,547	27,193	—	4,321	1,661,427	569,445	51,878	
1917	571,953	4,277,356	517,467	781	4,720	27,546	4,201	4,509	1,670,959	608,728	43,017	

\* During 1915, areas previously classed as Workmen's Homes and Agricultural Allotments were transferred to Farm Allotments.

(ii.) *The Small Improved Holdings Act 1906.* Under this Act, which has been repealed, 2822 acres at a cost of £53,568 allotted to 260 settlers were purchased close to towns where industrial employment could be obtained by the settlers.

These settlements are now under the control of the Closer Settlement Board.

(iii.) *Village Communities.* The rights of lessees of land in Village Communities are now provided for in the Land Act 1915. Certain unalienated Crown lands were surveyed into allotments of one to twenty acres. The price is not less than twenty shillings an acre. Additional areas may be acquired by conditional purchase. The rent is a nominal one for three years. The total amount of monetary aid advanced up to the 30th June, 1917, was £67,379, of which sum the amount repaid to date was £43,935. After three years a lease may be obtained.

On the 30th June, 1917, there were 671 settlers actually residing, and 79 not residing, but improving, making a total of 750 in occupation. Including wives and children the total number in residence was 3274.

(iv.) *Closer Settlement in the Irrigation Districts.* The movement for closer settlement in the irrigation districts started about eight years ago, when the State adopted the policy of purchasing large areas of land commanded by irrigation schemes, and subdividing them for intensive culture. The management and supervision of these areas were formerly vested in two bodies—the Closer Settlement Board and the Water Supply Commission, but in order to do away with this dual control, the Amending Closer Settlement Act of 1912 (now incorporated in the Closer Settlement Act 1915) was passed, transferring to the Water Supply Commission the entire management, leasing, and general supervision of all such areas within irrigation districts. The State had expended between three and four million pounds on irrigation works, which were not being used to their full extent. Under the Goulburn Scheme, the largest of the State works, more than half the available water was being wasted. The reason was lack of people to cultivate the land as irrigation requires. Previously, in the various districts the average size of farms varied from 400 to 600 acres, while under irrigation from about 20 to 80 acres will now give employment to a good-sized family and furnish them a comfortable living.

The large farms of the irrigation districts could not be properly cultivated by their owners, and the only way to make irrigation a success was to subdivide these holdings and bring in farmers to cultivate the smaller areas. To this end the State offered to buy suitable land in any district having a reliable and ample water supply, at a price fixed by impartial expert valuers, and has now purchased 111,714 acres for this purpose. This land is sold to settlers on  $31\frac{1}{2}$  years' terms with  $4\frac{1}{2}\%$  interest on deferred payments, under what are known as closer settlement conditions, which, while providing for the liberal terms and advances referred to in this paragraph, require, on the part of the settler or his successor, residence on the block for at least 8 months in each year. These payments are calculated on the Credit Foncier basis and are equalised through the whole period. As a result the settlers, by paying an additional  $1\frac{1}{2}$  per cent., or six per cent. in all, in  $31\frac{1}{2}$  years pay off both principal and interest. In the early stages of irrigated closer settlement the State undertook, where desired by settlers, to prepare portions of their holdings for irrigation by grading, seeding, check-banking, and constructing distributory channels, settlers being allowed to pay the cost of such works by instalments extending over ten years. The development of these settlements has, however, now reached such a stage that this is no longer necessary. Contract labour is available to new settlers, and there are facilities for the carrying-out of this work locally, but financial assistance to the same extent is still available. To further help the settler of limited means, the State will build a house and allow twenty years to pay for it. The cash payments required are as follows:—On houses costing less than £100, £10; on houses costing more, the cash payment varies from  $12\frac{1}{2}$  to 30 per cent. of the estimated cost. The State also makes loans to settlers equal to 60 per cent. of the value of permanent improvements, these loans to be repaid in 20 years. Five per cent. interest is charged on all advances—whether for houses, preparing land, or money furnished the settler. Last year 150 blocks were granted to new settlers, 42 of whom were discharged soldiers. During the past eight years 73,349 acres have been settled in farms averaging sixty acres each—the homes of 1209 new settlers—874 Australian, and 335 from overseas. There are also 374 allotments comprising 17,300 acres ready for immediate occupation, and a further 16,000 acres being prepared for settlers. At Shepparton, one of the oldest of these settlements, there are now 258 settlers living where there were originally twenty. At Cohuna, another early settlement, some settlers have made such satisfactory progress, that they have paid in full their land and other instalments, though their leases, which are for  $31\frac{1}{2}$  years, are only some seven years old. In Koyuga there are forty-nine settlers with good houses, many young orchards, fine crops of lucerne and vegetables, where in November 1910 there was not a house, a family, or an acre of cultivated land. Taking the settlements as a whole, including Nyah and Merbein settlements referred to in Section XIV., 82,000 acres have been settled, of which 27,000 acres are under lucerne, 12,000 under fruit, and 15,000 under other crops. There are now twelve settlers' homes for every one that existed on these areas when repurchased by the State.

Houses now being erected are of a better type than the original ones. This has been made possible because the settlers now applying have as a rule more capital than the earlier ones and desire better homes. Reports received regularly from officers in charge of irrigation districts indicate that in nearly all cases the settlers are making good progress on their holdings, and that there is undoubtedly an increasing feeling of security and permanence pervading these settlements.

The war conditions have made the disposal of the products of these settlements a matter of some difficulty. In regard to soft fruits, for instance, there was in December and January last a very heavy glut, and the position was so critical that the commission arranged a peach pool for the irrigation closer settlement districts. This was continued until the Government, by obtaining some large war contracts for jam, was able in a great measure to arrange for the absorption of the surplus. In Shepparton district the settlers, in view of last year's difficulty in disposing of their fruit, requested the Government to

advance them a sum under the proposed Fruit Act for the establishment at Shepparton of a fruit-processing factory. The Government signified its willingness to assist as suggested, and the building is now in course of erection.

5. *Queensland.*—(i.) *Closer Settlement.* Up to 31st December, 1916, under the provisions of the Act of 1906, private lands for Closer Settlement might be repurchased by the Crown, either by agreement or compulsorily. From 1st January, 1917, however, the opening of land for agricultural farm selection has not been allowed. Under the present law, the remainder of the land (after provision for roads, reserves, etc.) is opened for selection as perpetual lease selections at an annual rent fixed by the Minister, but at a rate per cent. of the capital value not less than the rate of interest paid by the Government on the purchase money of the estate of which the land forms part. The deposit of 10 per cent. is abolished, but so also is the provision that no rent need be paid during the second, third, and fourth years of the term. The rent may be reappraised for each period of fifteen years.

(a) *Compulsory Acquisition.* The owner of an estate in possession, the whole of which was proposed to be taken compulsorily, had the right to retain in one block, land of the value of £10,000 to £20,000, according to the value of the whole estate. The maximum sum which might be expended in any one year on the acquisition of land for the purpose of closer settlement was £500,000.

(b) *Disposal of Land.* A sufficient part of the land acquired must be set apart for roads, public reserves, and townships, and the remainder was proclaimed open for selection as agricultural farms under the Land Act 1910, which repealed the Land Acts 1897 to 1909, and under the Closer Settlement Act Amendment Act of 1913; the term of the lease was 40 years. The rent to be paid for the first year was equal to £10 for every £100 of the purchasing price; and (no payment being required during the second, third, or fourth years) an annual payment of £6 6s. 0d. for every £100, continued from the fifth to the fortieth year, would, at the end of the term, have paid off the principal sum together with interest.

(c) *Areas Acquired and Selected.*—The following table gives particulars of the operations under the above Acts at the end of the year 1901 and of each year from 1912 to 1916:—

#### QUEENSLAND.—CLOSER SETTLEMENT, 1901 and 1912-16.

Year.			Number of Estates Acquired.	Total Area Acquired to Date.	Total Amount of Purchase Money.	Total Area Selected to Date. <sup>1</sup>
				Acres.	£	Acres.
1901	...	...	15	132,760	335,056	124,710
1912	...	...	29	664,363	1,713,165	525,168
1913	...	...	29	664,363	1,713,165	543,788
1914	...	...	29	664,363	1,713,165	559,597
1915	...	...	29	664,363	1,713,165	582,788
1916	...	...	30	785,311	1,955,060	589,047

1. In addition there were at the end of the year 1916, 12,498 acres sold at auction and 3332 acres retained by the Government for experimental farms and for other sales.

The total area opened for selection up to the end of the year 1916 was 640,315 acres, of which 589,047 acres had been selected by 2204 selectors. There remained 51,268 acres unselected or reserved. The total amount of rent paid up to the same date was £1,186,241,

the amount in arrear being £17,406. At the end of the year 1916 there were 2231 selectors holding 2389 agricultural farms, 254 unconditional selections, and five prickly pear selections. In addition, land and improvements to the value of £90,966 had been sold at auction.

(ii.) *Group Settlement.* The Special Agricultural Selections Acts 1901 to 1905 were partly repealed by the Amending Act of 1909, which was in its turn repealed by the Land Act 1910. Under the last Act, land may be set apart for members of bodies of selectors who desire to settle in the same locality. The terms and conditions are similar to those in force for single selectors. Every group selection shall be subject to the condition of personal residence during the first five years of the term.

The Special Agricultural Selections Act 1905 provides that financial aid may be granted to all or any of the members of a body of selectors of agricultural homesteads. Advances may also be made to each selector for a value not exceeding £80 for the purpose of buying tools, rations, stock and poultry.

The portions opened for *group settlement* in 1916 numbered 33, and comprised a gross area of 16,962 acres. Up to the end of that year 26 portions, comprising 13,588 acres, valued at £6,783, had been applied for by members of the bodies of settlers for whom they were opened.

6. **South Australia.**—Under the provisions of the Crown Lands Acts the Commissioner may repurchase land for the purposes of closer settlement at a cost not exceeding £600,000 in any two years.

Reference is made on the next page to the provisions of the Irrigation and Reclaimed Lands Acts 1908, as consolidated by the Act of 1914, regarding the settlement of reclaimed lands.

(i.) *Disposal of Land.* The Crown Lands Act Further Amendment Acts 1915 and 1917 enlarge the value of the blocks into which estates may be subdivided for closer settlement purposes from £2000 to £5000 unimproved value. The purchase-money with interest thereon at 4 per cent. per annum is payable in 128 half-yearly instalments.

For the first five years, improvements to the value of £3 for every £100 of the purchase money must be yearly effected.

(ii.) *Areas Acquired and Selected.* The following table shews the area of land acquired by the Government in South Australia for the purposes of closer settlement, and the manner in which the same has been disposed of under the provisions of the Crown Lands Acts for the years 1902 and 1912 to 1916:—

**SOUTH AUSTRALIA.—CLOSER SETTLEMENT, 1902 and 1912-16.**

Year.	Area of Lands Repurchased to 31st Dec.	Agreements with Covenants to Purchase.	Total Area Leased as Homestead Blocks.		Perpetual Leases.	Miscellaneous Leases.	Sold.	Remainder Unoccupied (including Roads).
			Right of Purchase.	Perpetual Lease.				
	Acres.		Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1902	156,481	—	2,717	3,073	90,128	309	403	59,851
1912	624,122	436,038	894	1,386	49,857	40,101	57,884	38,408
1913	629,574	434,417	818	1,344	50,998	134	61,061	82,146
1914	657,629	476,332	796	1,584	51,863	164	63,964	63,204
1915	666,299	487,853	753	1,579	51,588	164	65,484	59,372
1916	729,963	487,355	733	1,513	52,138	164	66,607	121,453

During the financial year 1916-17, eleven properties of 28,170 acres were repurchased. The total area repurchased at 30th June, 1917, was 742,797 acres, the purchase-money being £2,438,195. Of that area 678,393 acres had been allotted to 2682 persons, the average area to each being 253 acres.



(iii.) *Irrigation Areas.* Under the Irrigation and Reclaimed Lands Act 1914, special provisions are made for granting perpetual leases of reclaimed lands. The maximum area of irrigable or reclaimed land one person may hold in any irrigation area is 50 acres, but in the case of partnerships 50 acres may be held by each partner up to a maximum of 150 acres. Land above the irrigating channels is also offered to lessees of irrigable blocks for dry farming, grazing, etc. Each block is offered under perpetual lease, at a rent not less than a sum equivalent to 4 per cent. on the unimproved value of the land, plus the cost of reclaiming. In the case of swamp lands in the reclaimed lands, a drainage rate of from 5s. to 7s. 6d. per acre per annum is payable. On the irrigable land the water rate has been fixed at 30s. per acre per annum for the first four years, after which an amount will be charged sufficient to cover actual cost of supplying water, and the interest on pumping plants, channels, etc. A sliding scale covers both the rent and water rates for the first four years.

Under Part V. of the Act a fund has been constituted called the Lessees of Reclaimed Lands Loan Fund, consisting of money provided by Parliament to be expended by the Department in assisting settlers on the irrigation areas by fencing, clearing and grading their blocks, and constructing irrigation channels and drains and concrete tanks thereon. Such improvements will be undertaken up to a value not exceeding £15 per acre of the irrigable area in each lessee's block, but before the work can be commenced a deposit must be paid equal to 15 per cent. of the Department's estimated value of such improvements.

The total cost of the work, less amount of deposit paid, will be treated as a loan to the lessee, and will be repayable in twenty equal annual instalments, after the expiration of five years, or at any shorter period if so desired by the lessee, current rate of interest being charged.

Any lessee will be permitted to accept the contract for carrying out his own improvements, according to the specifications and estimate of the Department, up to the maximum amount per acre, as mentioned above.

(iv.) *Village Settlement.* Out of the reserved lands the Commissioner is directed to set apart for the purpose of village settlement such land as he shall consider fit (a) for horticultural purposes, to be termed "horticultural land"; (b) for agricultural purposes, to be termed "commonage land"; and (c) land whereon any irrigation works are situated. Land so set apart is to be divided as follows:—Horticultural lands into blocks of as nearly as practicable equal unimproved value, and of about ten acres in extent; and the commonage lands into one or more blocks of such area as the Commissioner may determine, and the lands so set apart in each case form the district of the association. No person may hold more than two blocks. Commonage lands may only be leased to the association on perpetual lease, and all unleased horticultural blocks are under the control of the association. Every member of each association must provide or contribute towards the maintenance and regulation of irrigation works, and the care and cultivation of the commonage lands.

As the Waikerie and Kingston districts were proclaimed irrigation areas under the Irrigation and Reclaimed Lands Acts 1908 and 1909, this would leave only the Lyrup Village Settlement, which is in a better position, both financially and as regards population, than the others.

(v.) *Homestead Blocks.* Aboriginal reservations, except those at Point McLeay or Point Pearce, and other suitable lands may be offered as homestead blocks on perpetual lease or lease with a right of purchase. Each block must not exceed £100 in value, and residence by a member of the family for at least nine months of every year is compulsory.

There is now hardly any demand for homestead blocks, persons generally preferring small blocks of repurchased or Crown lands on ordinary conditions. The system appears to be of value only in centres of population where work can be obtained, and within a reasonable distance of a school.

- (a) *Advances to Blockholders.* Advances up to £50 may be made by the Commissioner to any homestead blockholder who has complied with the conditions of his lease or agreement, to assist in erecting permanent buildings on the blocks, or other improvements. Advances must be repaid, with interest at 4 per cent. per annum, by twenty equal instalments, commencing twelve months from the date of advance. The Commissioner may, in case of hardship, extend the time of repayment, such deferred payments bearing interest at 5 per cent. per annum. The total amount advanced up to the 30th June, 1917, was £41,376, of which £39,204 had been repaid.
- (b) *Particulars of Homestead Blocks.* The total number of leases and agreements of which purchase had been completed to the 31st December, 1916, was 2271, comprising 34,256 acres, at a purchase price of £92,163, or an average of £2 8s. 0d. per acre, the average of each holding of which purchase was completed being 15 acres.

7. **Western Australia.**—Under the Agricultural Lands Purchase Act 1909, which repealed and consolidated the Agricultural Lands Purchase Acts 1896 to 1904, sums not exceeding in the aggregate £400,000 may be expended on the repurchase of Crown lands near the railways, suitable for immediate cultivation.

(i.) *Acquisition of Land by the Government.* For the purpose of carrying out the provisions of the Acts, a Land Purchase Board has been constituted. Advised by the report of the Board, the Minister, with the approval of the Governor, may make a contract for the acquisition of the land by surrender at the price fixed by the Board, or at any lesser price.

(ii.) *Sale of Repurchased Land.* After reservation of part of the repurchased land for public purposes, the remainder is thrown open for selection. The maximum quantity held by one person must not exceed 1000 acres; in special cases 2000 acres.

(iii.) *Conditions of Sale to Selectors.* The maximum selling price of any repurchased land is equal to 105 per cent. of the actual cost of the land plus the cost of any improvements made upon it. A lease for twenty years is issued at a rent, the half-yearly instalments of which are to be at the rate of £3 17s. 9d. for each £100 of the selling price. Improvements must be made to the value of one-fifth of the purchase-money every two years of the first ten years of the lease. One-half of the land must be fenced within the first five years and the whole within ten years. Loans may be granted to selectors under the provisions of the Agricultural Bank Acts.

(iv.) *Areas Acquired and Selected.* The transactions conducted under the provisions of the Agricultural Lands Purchase Acts are shewn for 1901 and for each year from 1913 to 1917 in the subjoined table:—

**WESTERN AUSTRALIA.—CLOSER SETTLEMENT, 1901 and 1913-17.**

Year.	Total Area Acquired.	Total Purchase-money.	Roads, Reserves, etc.	Total Area made available for Selection.	Area Selected during the Year.	Total Area occupied to Date.	Balance of Area available for Selection.	Total Revenue received to Date.
	Acres.	£	Acres.	Acres.	Acres.	Acres.	Acres.	£
1901 ...	46,624	52,764	1,459	45,165	4,295	37,235	7,929	14,451
1912-13	446,804	421,333	12,799	290,670	10,335	270,945	19,724	175,245
1913-14	446,804	421,333	128,605	315,133	2,451	268,260	46,873	210,675
1914-15	446,804	421,373	15,825	430,979	4,122	272,190	158,789	239,409
1915-16	446,804	421,373	15,825	430,979	342	271,242	159,737	268,232
1916-17	446,804	421,373	15,825	430,979	77	269,648	161,331	295,740

\* The figures for 1901 are up to 31st December. For subsequent years they are given as up to 30th June.

On the 30th June, 1917, the total expenditure, exclusive of purchase-money but including interest, was £158,452, which left a balance of £137,288. At the same date the amount invested as sinking fund was £132,757.

(v.) *Workingmen's Blocks.* Any person not already holding land within the State is entitled to obtain a lease of lands which have been surveyed and thrown open for selection as workingmen's blocks. The maximum area that may be selected by one person is, if within any town or goldfield, half an acre, or five acres elsewhere. The price is not less than twenty shillings per acre, payable in ten years by half-yearly instalments. Residence and improvement conditions must be fulfilled. At the expiration of the lease, or at any time after five years from the date of the commencement of the lease, upon compliance with all conditions and upon payment of the full purchase-money and fee, a Crown grant will be issued. No person who has once held a workingman's block is allowed to select another, except under very special circumstances.

The following table shows the number and area of accepted applications for workingmen's blocks during each year, as well as the total number and area in existence at the end of the year 1901 and for each year from 1912 to 1917 :—

**WESTERN AUSTRALIA.—PARTICULARS OF WORKINGMEN'S BLOCKS,  
1901 AND 1912-17.**

Year ... ..	1901.	1912.*	1913.*	1914.*	1915.*	1916.*	1917.*
<b>NUMBER AND AREA OF ACCEPTED APPLICATIONS DURING YEAR.</b>							
Number	2	28	1	1	Nil	1	Nil
Area in Acres	6	56	4	1	Nil	1	Nil
<b>NUMBER AND AREA OF BLOCKS OCCUPIED AT END OF YEAR.</b>							
Number	7	327	230	168	189†	176	134
Area in Acres	31	688	617	590	584	565	510

\* For financial year ended 30th June.

† Increase due to cancelled leases being reinstated.

During the years 1907 to 1911 residential blocks on the goldfields were made available as workingmen's blocks, instead of under residential lease, as before, and since 19th October, 1911, the system of leasehold has been reverted to.

8. *Tasmania.*—The principles of closer settlement were not introduced into Tasmania until the Closer Settlement Act of 1906 was passed. Under this Act, which was amended in 1908 and 1911, and consolidated in 1913, power is given to the Minister for Lands, on the recommendation of the Closer Settlement Board, to purchase compulsorily or by agreement private land in any part of Tasmania for the purpose of closer settlement, and also to deal with and dispose of any unoccupied Crown land for the same purpose.

(i.) *Disposal of Land.* Lands so brought under the Act are subdivided into farm allotments of a suitable size—not exceeding £4000 in value—and are disposed of by way of lease for ninety-nine years. The rental is determined by the Board at a rate not exceeding 5 per cent. per annum on the capital value of the land. Any lessee who has fulfilled the conditions under the Act may, after the expiration of ten years of the term of the lease, purchase the land leased to him. The Minister has power to dispose of the fee simple of such land in any estate which is considered unsuitable for closer settlement.

A lessee must improve his holding to a value equal to  $2\frac{1}{2}$  per cent. on the capital value of the land in each of the first ten years of the term of his lease, and he must, within two years of the date of the lease, personally reside on his allotment during at least eight months of each of the following nine years. Provision is made for reserving a proportion of the allotments thrown open, and leasing the same, under special terms and conditions, to *bona fide* immigrants.

(ii.) *Advances to Settlers.* The total advance by the Government in aid of the cost of effecting improvements to any one lessee must not exceed pound for pound of the sum expended by him in building and other improvements. Such advances must be repaid, together with interest at 5 per cent., in equal half-yearly instalments within a period not exceeding 21 years.

(iii.) *Special Sales.* The fee-simple of land acquired may be disposed of by sale on the recommendation of the Board as sites for churches, public halls, dairy factories, fruit-preserving factories, mills, or creameries. The area sold may not exceed one acre in the case of a church or public hall, or five acres in other cases.

(iv.) *Areas Acquired and Selected.* Up to the 30th June, 1917, twenty-four areas had been opened up for closer settlement. Particulars are given in the following statement:—

#### TASMANIA.—CLOSER SETTLEMENT, 1909 to 1917.

Year.	Number of Farms made Available.	Number of Farms Allotted.	Area of Farms Allotted.	Rental of Farms Allotted.	Total Area Purchased.
			Acres.	£	Acres.
1909 ... ..	49	45	9,117	789	7,902
1910 ... ..	9	15	1,872	539	1,362
1911 ... ..	37	36	4,965	168	5,143
1912 ... ..	11	7	3,912	563	6,147
1913 ... ..	18	21	5,652	1,134	3,745
1914 ... ..	24	17	8,975	1,959	10,756
1915 ... ..	36	53	15,153	4,393	12,930
1916 ... ..	5	11	1,729	476	157
1917 ... ..	5	15	3,900	993	1,939

The total purchase-money paid by the Government up to the 30th June, 1917, was £274,563.

### § 9. Occupation of Crown Lands under Leases and Licenses

#### Issued by Mines Departments.

1. *Introduction.*—Leases and licenses for the occupation of Crown lands for mining and other purposes are issued by the Mines Departments in all the States. Such leases and licenses may be issued with respect to all Crown lands, whether otherwise unoccupied or whether occupied also under leases and licenses issued by the Lands Departments. Certain Crown lands, such as reserves, etc., are, however, subject to special conditions.

(i.) *Mining on Private Lands.* Certain of the Crown lands of the several States have been alienated from time to time, subject to various reservations in respect of gold and other minerals which might afterwards be found therein. Other lands have been

alienated without such reservation, but as the mineral gold does not pass from the Crown unless by express conveyance, it has remained the property of the State on all alienated lands. All lands alienated or in process of alienation are open to mining for gold; but to mining for other minerals, those lands only are open, in respect of which the rights are reserved in the grants. There are, however, generally certain reservations, such as those with reference to town or village lands and lands which have been built on or are used for special purposes. The working of minerals on private lands is regulated in the several States either by special Acts or by special provisions of the Acts relating to mining.

(ii.) *Leases and Licenses Issued and Total Areas of Crown Lands Occupied.* The following tables shew the total areas of Crown lands for which leases and licenses for mining purposes were issued in each State during 1901 and for each year from 1912 to 1916 inclusive, and also the total areas of Crown lands occupied for mining purposes at the end of each year during the same period:—

**CROWN LANDS, LEASES AND LICENSES FOR MINING PURPOSES,  
1901 AND 1912 TO 1916.**

Particulars.	N.S.W.	Victoria. <sup>1</sup>	Qld. <sup>2</sup>	S. Aust. <sup>3</sup>	W. Aust.	Tas.	Cwlth.
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**AREAS FOR WHICH LEASES AND LICENSES ISSUED.**

		Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1901	...	50,349	...	55,698	93,985	37,593	18,125
1912	...	15,548	34,047	50,788	259,381	64,939	13,920
1913	...	25,154	36,141	146,366	244,528	62,773	15,534
1914	...	31,573	12,774	126,160	766,866	29,127	15,123
1915	...	14,219	10,103	56,518	965,596	37,989	13,919
1916	...	40,616	7,173	31,106	557,911	23,448	9,306

**TOTAL AREA OCCUPIED AT END OF YEAR.**

1901	...	134,209	...	124,182	14,140	66,682	50,362	*389,575
1912	...	228,526	123,228	203,059	292,320	144,846	49,239	1,041,218
1913	...	219,488	123,320	285,966	412,693	149,801	45,913	1,237,181
1914	...	230,493	119,404	283,704	805,889	128,609	49,963	1,618,062
1915	...	224,621	108,773	242,196	1012,427	145,920	53,060	1,786,997
1916	...	224,593	97,532	218,312	670,890	138,157	53,462	1,402,946

1. Including private lands, leases, and water right licenses only. 2. Exclusive of lands held under miners' rights only. 3. Exclusive of miners' rights. 4. Excluding Victoria.

2. **New South Wales.**—Under the provisions of the Mining Act 1906 and the regulations made thereunder, Crown lands may be occupied for mining or other purposes by virtue of (i.) miners' rights; (ii.) business licenses; (iii.) authorities to prospect; or (iv.) leases.

A description of the conditions under which these licenses and leases are granted may be found in previous issues of the Year Book. (See Year Book No. 6, p. 307.)

(i.) *Particulars of Leases and Licenses Issued, 1916.* The following table gives particulars of leases and licenses of Crown lands issued by the Mines Department during the year 1916:—

## NEW SOUTH WALES.—LEASES AND LICENSES

ISSUED BY MINES DEPARTMENT DURING YEAR 1916.

Particulars.	Act under which Issued.	Purpose for which Issued.	Area.
<i>Leases—</i>	Mining Act 1906 ... ..	To mine for—	Acres.
	" " " " " " " "	Gold ... ..	1,348
	" " " " " " " "	Minerals other than coal ... ..	3,453
	" " " " " " " "	Coal ... ..	10,056
	" " " " " " " "	Leases (mining purposes) ... ..	513
<i>Other forms of occupancy—</i>	Mining Act 1906 (Dredging) ... ..	Gold ... ..	1,210
	" " " " " " " "	Minerals other than gold ... ..	
	Mining Act 1906 ... ..	Authorities to prospect ... ..	24,036
Total ... ..	—	—	40,616

(ii.) *Leases and Licenses Issued and Areas Occupied.* The following table gives particulars of the areas of Crown lands for which leases and licenses were issued by the Mines Department during each year, and of the total areas of Crown lands occupied under such leases and licenses at the end of the year 1901 and from 1912 to 1916 inclusive:—

## NEW SOUTH WALES.—LEASES AND LICENSES

ISSUED BY MINES DEPARTMENT, 1901 AND 1912-1916.

Purposes for which Issued or Occupied.	1901.	1912.	1913.	1914.	1915.	1916.
LEASES AND LICENSES ISSUED.						
Gold mining ... ..	Acres. 2,272	Acres. 3,584	Acres. 4,253	Acres. 4,047	Acres. 3,657	Acres. 2,558
Mining for other minerals ... ..	47,990	11,671	14,248	26,590	9,741	13,509
Authorities to prospect ... ..	...	183	6,385	134	439	24,036
For other purposes ... ..	87	110	268	802	382	513
Total ... ..	50,349	15,548	25,154	31,573	14,219	40,616

## TOTAL AREAS OCCUPIED.

Gold mining ... ..	6,942	15,531	12,623	12,832	11,098	10,767
Mining for other minerals ... ..	126,885	208,286	198,415	212,864	207,812	207,595
Authorities to prospect ... ..	...	139	3,989	10	15	218
For other purposes ... ..	382	4,570	4,461	4,787	5,696	6,013
Total ... ..	134,209	228,526	219,488	230,493	224,621	224,593

3. *Victoria.*—The occupation of Crown lands for mining and auxiliary purposes in this State is regulated by the Mines Act 1915. The Department of Mines and Forests is authorised to issue mining leases (gold-mining, mineral, and dredging), also licenses (searching, tailings, and water-right), while miners' rights and business licenses are issued by the Treasury Department, and residence areas are registered by local mining registrars. A description of the conditions governing the issue of these leases and licenses will be found in previous editions of the Year Book. (See Year Book No. 6, p. 308.)

Licenses of auriferous lands not for mining purposes may be issued by the Lands Department.

*Leases and Licenses Issued and Areas Occupied for Mining.* Particulars of leases and licenses for mining purposes of Crown lands alone are not available, the official returns including also private lands. During the year 1916 the number of mining leases, licenses, etc., issued was 173, covering an area of 7173 acres; the rent, fees, etc., received amounted to £754. No particulars are available as to the total area of either Crown or private land occupied for mining purposes.

4. **Queensland.**—The occupation of the Crown lands for mining purposes in this State is regulated by the Mining Acts 1898 to 1902, the Mining for Coal and Mineral Oil Act 1912, and the Miners' Homestead Leases Act 1913. Under these Acts the Department of Mines is authorised to issue :—(i.) Miners' rights; (ii.) mining leases; (iii.) mining leases and licenses for coal and mineral oil; and (iv.) miners' homestead leases.

The conditions which govern the issue of miners' rights, mining leases, and miners' homestead leases are described in previous issues of the Year Book. (See Year Book No. 6, p. 309.)

Mineral leases for coal and mineral oil may be granted for a term of twenty-one years at an annual rent of sixpence an acre, together with a royalty, according to the distance the lease is from a seaport or other place of delivery, of twopence to threepence per ton of coal raised during the first five years of the lease, and of fourpence to sixpence per ton during the remainder of the term. A lease for mineral oil with a maximum area of 320 acres may be granted for a term of 21 years at an annual rental of 6d. per acre, with a royalty of 5% of the value of all crude oil produced. Licenses to occupy not more than 2560 acres may be granted to any person desiring to prospect Crown lands for coal and mineral oil upon payment of one penny for every acre comprised in the application.

The "Mining on Private Land Act 1909," authorises the granting of leases, etc. on and under private land, under conditions as to compensation, etc.

(i.) *Particulars of Leases and Licenses Issued, 1916.* The subjoined table gives particulars of the leases and licenses of Crown lands issued for mining purposes during the year 1916:—

#### QUEENSLAND.—LEASES AND LICENSES

ISSUED BY MINES DEPARTMENT DURING YEAR 1916.

Lease or License.	Mining Leases				Miners' Homestead Leases.	Coal Prospecting Licenses.	Miscellaneous Holdings.
Purpose for which issued.	To mine for gold.	To mine for minerals other than gold.	Tramways	Buildings and machinery.	Residence, business, etc.	To prospect for coal.	Mining, residence, etc.
Area in acres...	102	2,087	51	—	16,817	12,049	*10,000

\* Approximate.

(ii.) *Particulars of Areas Occupied.* The following table shews the areas for which leases and licenses of Crown lands were issued during each year, and the total area occupied at the end of the year 1901 and from 1912 to 1916 inclusive.

## QUEENSLAND.—LEASES AND LICENSES

ISSUED BY MINES DEPARTMENT, 1901 AND 1912-1916.

Particulars.	1901.	1912.	1913.	1914.	1915.	1916.
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## LEASES AND LICENSES ISSUED DURING YEAR.\*

	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Gold mining ... ..	3,581	918	1,055	356	581	102
Mining for other minerals ... ..	7,142	3,198	7,248	10,895	9,391	2,087
For other purposes ... ..	44,975	46,667	138,072	114,909	46,546	28,917
Total ... ..	55,698	50,783	146,375	126,160	56,518	31,106

## TOTAL AREA OCCUPIED AT END OF YEAR.\*

	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Gold mining ... ..	11,296	6,884	5,915	5,479	4,736	3,508
Mining for other minerals ... ..	23,113	31,253	34,711	39,205	43,389	39,799
For other purposes ... ..	89,773	164,922	245,340	239,020	194,071	175,005
Total ... ..	124,182	203,059	285,966	283,704	242,196	218,312

\* Exclusive of lands held under miners' rights only.

5. **South Australia.**—In this State leases and licenses for mining purposes are issued by the Department of Mines under the authority of the Mining Act 1893, and amending Acts. Under these Acts mining and prospecting are permitted in virtue of (i.) miners' rights; (ii.) mining leases; (iii.) coal or oil leases; and (iv.) miscellaneous leases, and in addition occupation of Crown lands is permitted by virtue of (v.) business claims, and (vi.) occupation licenses.

The conditions which govern the issue of these various leases and licenses have been described in previous issues of the Year Book. (See Year Book No. 6, p. 311.)

(i.) *Particulars of Leases and Licenses.* The following table gives particulars of leases and licenses of Crown lands issued by the Mines Department during the year 1916:—

## SOUTH AUSTRALIA.—LEASES AND LICENSES

ISSUED BY MINES DEPARTMENT DURING YEAR 1916.

Particulars.	Act under which Issued.	Purpose for which Issued.	Area. Acres.
Leases ... ..	Mining Act 1893 ... ..	To mine for— Gold and other metals and miner's	923
Mineral claims	"	"	7,219
Licenses ... ..	Mining Act Amendment Act 1900 ... ..	To search for "precious stones, mineral phosphates, oil, rare metals, minerals, and earths, the mining for which has not proved payable in any portion of the State	549,760
Occupation licenses ... ..	Mining Act 1893 ... ..	Occupation by miners ... ..	9
Total ... ..	—	—	557,911



(ii.) *Leases and Licenses Issued and Areas Occupied.* The following table gives particulars of the areas of Crown lands for which leases and licenses were issued by the Mines Department during each year, and of the total area of Crown lands occupied under such leases and licenses at the end of the year 1901 and from 1912 to 1916 inclusive:—

### SOUTH AUSTRALIA.—LEASES AND LICENSES

ISSUED BY MINES DEPARTMENT, 1901 AND 1912 TO 1916.

Particulars.	1901.	1912.	1913.	1914.	1915.	1916.
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#### LEASES AND LICENSES ISSUED.\*

	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Gold mining ...	1,377	480	312	625	356	83
Mining for other minerals ...	92,587	258,901	244,204	766,213	965,226	557,819
For other purposes ...	21	...	12	28	14	9
Total ...	93,985	259,381	244,528	766,866	965,596	557,911

#### TOTAL AREAS OCCUPIED.\*

Gold mining ...	14,140	1,536	1,419	1,581	1,840	1,505
Mining for other minerals ...	...	290,667	411,175	804,205	1010474	669,281
For other purposes ...	...	117	99	103	113	104
Total ...	14,140	292,320	412,693	805,889	1012427	670,890

\* Exclusive of miners' rights.

The following table shews the total area occupied (exclusive of miners' rights) at the end of the year 1916, classified according to the nature of the holding:—

### SOUTH AUSTRALIA.—TOTAL AREA UNDER MINING ACTS, 1916.

Nature of Holding.	Number.	Area.	Nature of Holding.	Number.	Area.
		Acres.			Acres.
Mineral leases ...	316	14,421	Search licenses ...	253	626,560
Gold leases ...	87	1,505	Coal and oil claims ...	6	3,840
Gold dredging leases ...	...	...	Gold claims ...	3	10
Miscellaneous leases ...	57	11,102	Coal and oil leases ...	4	1,360
Mineral claims ...	304	11,988			
Occupation licenses ...	208	104	Total ...	1,238	670,890

6. **Western Australia.**—The issue of leases and licenses by the Mines Department is regulated by the Mining Act 1904. Under this Act Crown lands may be occupied by virtue of (i.) miners' rights; (ii.) mining leases; and (iii.) miners' homestead leases.

The conditions governing the issue of these leases and licenses are described in previous issues of the Year Book. (See Year Book No. 6, p. 312.)

(i.) *Particulars of Leases and Licenses Issued, 1917.* The following table gives particulars of mining leases and licenses of Crown lands issued during 1917:—

**WESTERN AUSTRALIA.—LEASES AND LICENSES ISSUED BY MINES DEPARTMENT, 1917.\***

Particulars.	Gold-Mining.	Minerals other than Gold.	Miners' Homesteads.	Miscellaneous.	Total.
	Acres.	Acres.	Acres.	Acres.	Acres.
Leases ...	4,103	4,946	716	5	9,770
Licenses ...	8,386	9,873	...	131	18,390

\* Exclusive of miners' rights.

(ii.) *Particulars of Areas Occupied.* The following table shows the areas for which leases and licenses of Crown lands were issued during each year, and the total area occupied at the end of the year 1901 and from 1913 to 1917 inclusive:—

**WESTERN AUSTRALIA.—LEASES AND LICENSES**

**ISSUED BY MINES DEPARTMENT, 1901 AND 1913-1917.**

Particulars.	1901.	1913.	1914.	1915.	1916.	1917.
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**LEASES AND LICENSES ISSUED DURING YEAR.\***

	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Gold mining ...	17,454	20,657	18,070	26,162	14,954	12,489
Mining for other minerals ...	19,281	40,111	9,434	9,389	6,647	14,819
For other purposes ...	858	2,005	1,623	2,438	1,847	852
Total ...	37,593	62,773	29,127	37,989	23,448	28,160

\* Exclusive of miners' rights.

**TOTAL AREA OCCUPIED AT END OF YEAR.\***

	40,525	30,464	26,941	30,532	24,391	22,569
Gold mining ...	14,091	71,291	57,495	70,146	69,405	48,778
Mining for other minerals ...	12,066	48,046	44,173	45,242	44,361	42,309
For other purposes ...	66,682	149,801	128,609	145,920	138,157	113,656
Total ...						

\* Exclusive of miners' rights.

7. *Tasmania.*—Under the provisions of the Mining Act 1917, Crown lands in this State may be occupied for mining and auxiliary purposes by virtue of (i.) prospectors' licenses; (ii.) miners' rights; (iii.) mining leases; and (iv.) miscellaneous licenses. Business and residence licenses within mining areas may be issued by the Lands Department.

A description of the conditions under which these leases and licenses are issued may be found in previous editions of the Year Book. (See Year Book No. 6, p. 314.)

(i.) *Particulars of Leases and Licenses Issued, 1917.* The following table shows particulars of leases and licenses of Crown lands, exclusive of prospectors' licenses and miners' rights, issued by the Mines Department during the year 1917 :—

### TASMANIA.—LEASES AND LICENSES

ISSUED BY MINES DEPARTMENT DURING 1917.\*

Mineral.	No.	Area.	Mineral.	No.	Area.
		Acres.			Acres.
Asbestos ...	2	100	Silver ...	7	437
Barytes ...	4	110	Tin ...	96	1,960
Coal ...	4	554	Wolfram...	7	336
Copper...	10	526	Dredging claims ...	9	101
Gold ...	48	784	Machinery sites ...	1	2
Manganese ...	1	63	Mining easements...	9	14
Minerals ...	48	2,284	Water rights ...	49	85
Nickel...	1	80			
Phosphate Rock	1	4			
Scheelite ...	1	75	Total...	298	7,515

\* Exclusive of prospectors' licenses and miners' rights, which are issued by officers in different districts throughout the State, and as to which particulars are not available.

(ii.) *Leases and Licenses Issued and Areas Occupied.* The following table gives particulars of the areas of Crown lands for which leases and licenses (exclusive of prospectors' licenses and miners' rights) were issued during each year, and of the total area of Crown lands occupied under such leases and licenses at the end of the year 1901 and from 1912 to 1916 inclusive :—

### TASMANIA.—LEASES AND LICENSES

ISSUED BY MINES DEPARTMENT, 1901 AND 1912 TO 1916.\*

Particulars.	1901.	1912.	1913.	1914.	1915.	1916.
LEASES AND LICENSES ISSUED.*						
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Gold mining ...	1,067	477	529	1,354	520	684
Mining for other minerals ...	17,058	12,729	14,444	13,588	13,211	8,203
For other purposes ...	...	714	561	181	188	419
Total ...	18,125	13,920	15,534	15,123	13,919	9,306
TOTAL AREAS OCCUPIED.*						
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Gold mining ...	3,394	1,344	988	2,130	2,026	1,692
Mining for other minerals ...	46,968	45,500	42,360	44,593	48,330	48,637
For other purposes ...	...	2,395	2,565	3,240	2,704	3,133
Total ...	50,362	49,239	45,913	49,963	53,060	53,462

\* See note to preceding table.

8. **Northern Territory.**—The granting of leases and licenses for mining purposes in the Northern Territory is under the control of the Administrator. The area of land held under Mining Regulations in the Northern Territory has been previously referred to in § 7 of this chapter (page 271).

## § 10. Resumption by Crown of Alienated Lands.

**1. General.**—Under various Acts, alienated lands may be compulsorily resumed by the Crown in the several States for certain purposes, generally connected with works of a public nature. Resumptions for closer settlement purposes have already been referred to (see § 8, above). In most of the States there are Lands Clauses or similar Acts providing the machinery, and indicating the procedure to be adopted in assessing the compensation to be paid by the Crown to private owners in cases where the parties have failed to agree as to the amount to be paid. The provisions of these Acts are generally incorporated in the special Acts specifying the purposes for which alienated lands may be resumed. Lands leased for pastoral purposes may generally be resumed by the Crown on short notice. The lessee is ordinarily entitled to compensation for land resumed, for loss or depreciation in value of the lease caused by such resumption, and for improvements.

(a) *New South Wales.* Alienated lands may be recovered by the Crown for authorised works and certain public purposes under the provisions of the Public Works Act 1900, and in other cases may be acquired by the Crown by purchase, gift, or surrender under Executive authority. Alienated lands required for public roads may be resumed under the Public Roads Act 1902, and if containing gold may be resumed for mining under Section 72 of the Mining Act 1906. Lands dedicated or granted by the Crown for public purposes may be resumed under Section 25 of the Crown Lands Consolidation Act 1913, and Section 1 of the Public Trusts Act 1897. Surrender and exchange of lands alienated or in process of alienation may be carried out under Section 195 of the Crown Lands Consolidation Act 1913.

(b) *Victoria.* In Victoria lands may be resumed in accordance with the provisions of the Lands Compensation Act 1915, the Public Works Act 1915, the Railways Act 1915, the Land Act 1915, the Local Government Act 1915, the Water Act 1915, and the Forests Act 1915.

(c) *Queensland.* In this State alienated lands may be resumed under the provisions of the Public Works Land Resumption Act 1906, for any of the purposes specified in section 4 of that Act.

(d) *South Australia.* In this State the principal Acts under which land is repurchased for public works are the Railway Commissioners Act 1887, the Water Conservation Acts 1886, 1889, and 1900, the Waterworks Act 1882, and the Sewers Act 1878.

(e) *Western Australia.* In Western Australia private lands may be resumed under the provisions of the Land Act 1898, the Roads Act 1902, and the Public Works Act 1902.

(f) *Tasmania.* The procedure for resuming land when required for road purposes is as follows:—

When provision is made by Parliament for a Public Works vote for any road, or when an amount is available from other sources, as under the Crown Lands Act (under which a proportion of the amount paid as purchase money is set aside for road purposes), application is made to the owner of the property through which the road is to pass. In most cases either land is given free or a price is agreed on between the owner and the officers of the Department. The purchase-money, with cost of necessary survey, is charged against the provision as referred to above, the land is surveyed and proclaimed under the provisions of the Lands Vesting Act 1894. In case of it being impossible to settle the matter by arrangement with the owner, the land can be acquired by arbitration under the Lands Clauses Act, which is incorporated with the Public Works and Crown Lands

Acts, but since the passing of the Lands Resumption Act 1910 it is possible to acquire it compulsorily without waiting for the usual formalities. Under this Act a notification is given to the owner, the land is surveyed, and then resumed by notification in the Gazette, on the publication of which the fee simple of the land vests at once in the Crown absolutely. The owner is then called upon to submit his claim, and the amount can be settled either by arbitration or by a court of competent jurisdiction in accordance with the provisions of the Lands Resumption Act. This procedure under the Lands Resumption Act is now becoming much more general in cases where the land cannot be acquired by arrangement, and it is expected that the effect of the operation of the Act will be to the advantage of the Government and consequently to the public, in enabling land to be acquired more economically than under the former practice. The local bodies, *i.e.*, the municipalities, have also power to acquire land under the provisions of the Local Government Act, but in practice it has been found most convenient for the procedure to be carried out by the Public Works Department on behalf of the local bodies, and this insures the title being vested in the Crown, which gives uniformity of practice, and has also the effect that inquiry made as to title at the Government office shews at once the land that has been acquired.

2. **Areas Resumed.**—The subjoined table shews, so far as particulars are available, the areas of private lands resumed, exclusive of resumptions for closer settlement purposes, in each State during 1901 and 1912-16:—

**AREAS OF PRIVATE LANDS RESUMED BY THE CROWN, 1901 and 1912-16**  
(EXCLUSIVE OF RESUMPTIONS FOR CLOSER SETTLEMENT).

Year.	N.S.W.*	Victoria.**	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1901 ...	7,864	52	26	†	91	120	8,153†
1912 ...	2,021	†	123	†	†	†	†
1913 ...	2,363	†	79	†	†	†	†
1914 ...	527	†	...	†	†	†	†
1915 ...	1,997	†	84	†	†	492	†
1916 ...	1,619	†	401	†	†	†	†

\* To 30th June. \*\* Exclusive of resumptions for railway purposes, which for the years 1901 to 1906 inclusive, amounted to 13,061 acres. † Not available. ‡ Exclusive of South Australia.

## § 11. Alienation and Occupation of Crown Lands in the Several States.

1. **Introduction.**—The tables given in the previous parts of this section shew separately the areas alienated, in process of alienation, and occupied under various tenures in the several States. The tables given below shew collectively the general condition of the public estate in each State, having regard to (a) the area alienated absolutely, which includes free grants, sales, and conditional purchases for which grants have been issued, the conditions having been complied with; (b) the area in process of alienation, comprising holdings for which the fee-simple has not yet been alienated, but which are in process of sale under systems of deferred payments; (c) the area occupied under all descriptions of leases and licenses; and (d) the area unoccupied, which, ordinarily, includes roads, permanent reserves, forests, etc. In some cases, however, lands which are permanently reserved from alienation are occupied under leases and licenses, so that

in such cases the areas reserved are comprised in class (c) and not in class (d). Particulars of leases and licenses of reserved areas, as distinguished from leases and licenses of other lands, are not available. It should be observed that in many cases lands occupied under leases or licenses for pastoral purposes are held on short tenures only, and could thus be made available for settlement practically whenever required.

2. **New South Wales.**—The total area of the State of New South Wales (exclusive of Lord Howe Island and Commonwealth Territory) is 198,058,880 acres, of which on the 30th June, 1917, 40,661,225 acres, or nearly one-fifth, were alienated absolutely; 19,847,737 acres, or over one-tenth, were in process of alienation; 117,015,359 acres, or upwards of three-fifths, were occupied under Lands Department, Western Land Board, or Mines Department leases and licenses; and the remaining 20,534,559 acres, or about one-tenth, were unoccupied. The next table shews the areas alienated, in process of alienation, held under leases and licenses, and unoccupied, in 1901 and from 1913-14 to 1916-17.

During the year 1916-17, a total area of 1,037,087 acres became available for Crown leases, homestead farms, suburban holdings, additional holdings, etc. Of this area, 273 acres were made available for irrigation farms and allotments, and 29,876 acres were acquired under the Closer Settlement Promotion Act. In addition, 407,471 acres were made available for soldiers' settlement.

### NEW SOUTH WALES.—ALIENATION AND OCCUPATION OF CROWN LANDS,

1901 AND 1913-17.\*

Particulars.	Area in Acres.				
	1901.	1913-14.	1914-15.	1915-16.	1916-17.
<b>1. Alienated.</b>					
Granted and sold by private tender and public auction, at prices ranging from five to twenty shillings per acre, prior to 1862 ...	7,146,579	7,146,579	7,146,579	7,146,579	7,146,579
Sold by auction and other sales, 1862 to date ...	14,638,888	14,914,335	14,914,320	14,916,901	14,917,287
Conditionally sold, 1862 to date ...	4,212,189	15,960,930	16,264,942	16,571,958	16,929,786
Granted under Volunteer Land Regulations, 1867 to date ...	168,545	172,198	172,198	172,198	172,198
Granted for public and religious purposes ...	241,968	235,622	236,134	238,560	239,339
Homestead grants ...	35,385	1,396,911	1,365,719	1,317,120	1,256,036
<b>Total area alienated ...</b>	<b>26,443,554</b>	<b>139,826,576</b>	<b>40,100,492</b>	<b>40,363,316</b>	<b>40,661,225</b>
<b>2. In Process of Alienation.</b>					
Under system of deferred payments ...	20,044,703	17,837,702	18,035,210	18,315,181	18,693,915
Under system of homestead selections (including leases converted, but excluding grants issued) ...	1,550,985	\$	\$	\$	\$
Closer settlement purchases ...	...	999,579	1,029,408	1,094,475	1,153,822
<b>Total area in process of alienation ...</b>	<b>21,595,688</b>	<b>18,837,281</b>	<b>19,064,618</b>	<b>19,409,656</b>	<b>19,847,737</b>
<b>3. Held under Leases and Licenses.</b>					
Total under Lands Department and Western Land Board ...	126,921,161	122,085,796	121,565,598	118,641,247	117,015,359
Mineral and auriferous leases and licenses (Mines Department) ...	134,209	219,488	230,493	224,621	224,593
<b>Total leases under all Government Departments ...</b>	<b>127,055,370</b>	<b>122,305,284</b>	<b>121,796,091</b>	<b>118,865,868</b>	<b>117,239,952</b>
<b>4. Unoccupied ...</b>	<b>23,543,468</b>	<b>17,086,475</b>	<b>17,093,219</b>	<b>18,415,580</b>	<b>20,309,966</b>

Area of State (exclusive of Lord Howe Island and Commonwealth Territory)—198,058,880 acres.

\* The figures for 1901 are up to the 31st December, while for the other years given they are up to the 30th June. † Inclusive of alienated and dedicated areas within Commonwealth Territory, and areas acquired for closer settlement and promotion of same. § Now included under Homestead grants.

3. **Victoria.**—The total area of the State of Victoria is 56,245,760 acres, of which 24,345,425 acres, or about three-eighths, had been alienated absolutely up to the end of the year 1916; 8,278,904 acres, or about one-seventh, were in process of alienation under deferred payments; and 12,433,959 acres were occupied under leases and licenses (exclusive of leases and licenses held under the Mines Department). The following table shews the areas alienated and in process of alienation, together with the areas reserved, leased, and available for occupation at the end of the year 1901 and from 1912 to 1916:—

**VICTORIA.—ALIENATION AND OCCUPATION OF CROWN LANDS,**

1901 AND 1912-16.

Particulars.	Area in Acres.					
	1901.	1912.	1913.	1914.	1915.	1916.
1. <i>Alienated</i> ... ..	20,066,875	23,856,389	24,009,440	24,138,965	24,256,222	24,345,425
2. <i>In Process of Alienation</i> —						
Exclusive of Mallee, etc. ...	3,587,668	1,932,189	1,971,614	2,004,248	2,025,172	2,069,321
Mallee Lands ...	87,006	4,838,883	5,165,799	5,334,113	5,534,655	5,682,094
Under Closer Settlement Acts ...	...	397,402	(1449,791)	(1484,548)	494,865	507,500
Village Settlements ...	55,077	30,057	25,103	24,529	20,861	19,989
Total ... ..	3,730,351	7,198,531	7,162,516	7,362,890	8,075,653	8,275,904
3. <i>Leases and Licences Held</i> —						
Under Lands Department ...	17,110,709	14,443,191	13,230,211	13,325,416	13,035,612	12,433,959
Under Mines Department* ...	...	...	...	...	...	...
4. <i>Unoccupied Crown Lands†</i> ...	15,337,825	10,747,649	11,843,593	11,418,489	10,878,273	11,187,472

Total area of State—56,245,760 acres.

\* Not available. † Including leases and licenses held under the Mines Department, which are not available. ‡ This area is also included with land alienated.

Crown lands in Victoria include roads, 1,732,720 acres; water reserves, 316,204 acres; agricultural colleges, etc., 85,107 acres; State forests and timber reserves (now under Forests Act 1907), 3,886,546 acres; State forests and timber reserves under Land Acts, 227,078 acres; reserves in the Mallee, 397,881 acres; unsold land in towns, etc., 2,685,642 acres; and other reserves, 305,584 acres.

4. **Queensland.**—The total area of this State is 429,120,000 acres, of which, on the 31st December, 1916, 16,570,590 acres, or about one twenty-sixth, were alienated absolutely; 10,566,829 acres, or about one-fortieth, were in process of alienation; 326,192,702, or about three-quarters, were occupied under leases and licenses; roads, reserves, etc., occupied 15,857,492 acres, the remaining 59,932,387 acres being unoccupied. From 1901 to 1916 the area alienated absolutely increased by 3,037,122 acres or 22 per cent., and the area in process of alienation by 7,775,165 acres, or 278 per cent.

The following table shews the area alienated absolutely, the area in process of alienation, and the area held under various forms of lease and license at the end of the year 1901 and from 1912 to 1916:—

## QUEENSLAND.—ALIENATION AND OCCUPATION OF CROWN LANDS,

1901 AND 1912-16.

Particulars.	Area in Acres.					
	1901.	1912.	1913.	1914.	1915.	1916.
1. <i>Alienated Absolutely—</i>						
By Purchase ... ..	13,462,304	15,790,907	15,956,663	16,159,145	16,360,715	16,463,906
Without Payment ... ..	71,164	83,295	85,100	85,396	86,667	86,684
Total ... ..	13,533,468	15,874,202	16,041,763	16,244,541	16,447,382	16,570,590
2. <i>In Process of Alienation</i> ... ..	2,791,664	9,577,037	10,039,255	10,586,914	10,776,793	10,566,829
3. <i>Occupied under Leases and Licenses—</i>						
Runs in Settled Districts ... ..	176,000	227,410,480	228,873,480	226,119,640	223,896,160	215,950,840
" Unsettled Districts ... ..	223,553,760					
Occupation Licenses ... ..	35,103,600	42,465,360	40,535,160	46,814,960	45,609,280	44,619,240
Grazing Farms and Homesteads ... ..	21,793,242	47,179,483	52,251,784	57,869,972	62,568,511	64,773,601
Scrub Selections ... ..	272,946	233,436	216,438	214,932	213,648	206,155
Leases Special Purposes ... ..	249	88,147	107,707	121,595	158,045	173,200
Under Mines Department ... ..	124,182	203,059	310,966	308,704	267,195	238,311
Perpetual Lease Selections ... ..	...	35,179	42,363	49,905	112,065	228,876
Auction Perpetual Leases ... ..	...	...	...	...	...	2,479
Total ... ..	280,023,979	317,615,144	322,337,898	331,499,708	332,824,904	326,192,702
4. <i>Roads and Reserves</i> ... ..	...	15,371,446	15,473,444	15,561,184	15,793,438	15,857,492
5. <i>Unoccupied</i> ... ..	132,770,889	70,682,171	65,227,640	55,227,653	53,277,483	59,932,387

Total area of State—429,120,000 acres.

The area open for selection (as distinguished from occupation for purely pastoral or special purposes) under every mode at the beginning of the year 1916 was 11,864,241 acres, and the area opened during the year was 8,440,778 acres, while the area withdrawn was 1,969,975 acres. The area selected was 4,903,196 acres, and the area remaining open at the end of the year was 13,431,848 acres. The number of grazing selections was 359 as against 497 in the previous year, and their gross area 4,477,748 acres, as against 6,446,353 acres.

5. *South Australia.*—The area of the State of South Australia is 243,244,800 acres. In this State, at the end of the year 1916, there were 10,674,208 acres, or about one twenty-fourth, alienated absolutely; 3,039,292 acres, or about one-eightieth, were in process of alienation; 114,171,206 acres, or about one-half, were occupied under leases and licenses; while the remaining 115,360,094 acres were unoccupied. The subjoined table shews for South Australia the area of land alienated absolutely, and in process of alienation under deferred payments, and the area held under different forms of leases:—



**SOUTH AUSTRALIA.—ALIENATION AND OCCUPATION OF CROWN LANDS,  
1901 AND 1912-16.**

Particulars.	Area in Acres.					
	1901.	1912.	1913.	1914.	1915.	1916.
<i>1. Alienated—</i>						
Sold ... ..	7,413,510	10,129,969	10,296,156	10,383,620	10,467,883	10,544,779
Granted for Public Purposes ... ..	121,613	122,777	122,818	122,851	122,873	122,429
<b>Total ... ..</b>	<b>7,535,123</b>	<b>10,252,746</b>	<b>10,418,974</b>	<b>10,506,471</b>	<b>10,590,756</b>	<b>10,674,208</b>
<i>2. In Process of Alienation—</i>	<b>553,774</b>	<b>1,782,451</b>	<b>2,032,635</b>	<b>2,410,137</b>	<b>2,943,395</b>	<b>3,039,292</b>
<i>3. Held under Lease and License—</i>						
Right of Purchase ... ..	5,639,519	2,836,346	2,701,392	2,634,685	2,574,640	2,504,143
Perpetual ... ..	7,115,782	15,070,607	14,997,201	14,969,877	14,943,771	14,851,173
Pastoral ... ..	68,916,125	96,356,850	96,933,810	96,382,130	95,756,850	95,016,370
Other Leases and Licenses ... ..	3,905,729	1,273,350	1,229,971	1,193,767	1,144,683	1,128,630
*Mining " " ... ..	14,140	292,323	412,693	805,889	976,489	670,890
<b>Total ... ..</b>	<b>85,591,295</b>	<b>115,829,476</b>	<b>116,275,067</b>	<b>115,986,348</b>	<b>115,396,433</b>	<b>114,171,206</b>
<i>4. Total Occupied ... ..</i>	<b>93,680,192</b>	<b>127,864,673</b>	<b>128,726,676</b>	<b>128,902,956</b>	<b>128,930,584</b>	<b>127,884,706</b>
<i>5. Area Unoccupied ... ..</i>	<b>149,564,608</b>	<b>115,380,127</b>	<b>114,518,124</b>	<b>114,341,844</b>	<b>114,314,216</b>	<b>115,360,094</b>

Total area of State—243,244,800 acres.

\* Exclusive of miners' rights.

**6. Western Australia.**—The total area of Western Australia is 624,588,800 acres, of which on the 30th June, 1917, 8,276,084 acres, or about one seventy-fifth part, were alienated absolutely; 13,284,721 acres, or about one forty-seventh part, were in process of alienation; while 192,735,253 acres, or nearly one-third, were occupied under leases and licenses issued either by the Lands or the Mines Departments. The remaining 410,292,742 acres, or about two-thirds, were unoccupied.

The following table shews the areas alienated absolutely and conditionally, and the areas held under leases and licenses at the end of the year 1901 and on 30th June, 1913 to 1917 :—

**WESTERN AUSTRALIA.—ALIENATION AND OCCUPATION OF CROWN LANDS,  
1901 AND 1913-17.**

Particulars.	Area in Acres.					
	1901.	1912-13.*	1913-14.*	1914-15.*	1915-16.*	1916-17.*
<i>1. Absolutely Alienated ... ..</i>	<b>3,468,878</b>	<b>7,606,759</b>	<b>7,795,319</b>	<b>8,007,937</b>	<b>8,125,629</b>	<b>8,276,084</b>
<i>2. In Process of Alienation—</i>						
Midland Railway Concessions ... ..	2,768,810	121,800	121,800	54,800	54,800	54,800
Free Homestead Farms ... ..	283,455	1,547,817	1,517,330	1,469,132	1,404,237	1,351,461
Conditional Purchases... ..	1,349,554	8,294,524	8,255,604	8,402,856	7,911,998	7,673,356
Selections from the late W.A. Company ... ..	75,213	12,716	7,182	4,851	3,728	3,088
Selections under the Agricultural Lands Purchase Act ... ..	37,235	261,517	258,191	260,697	259,055	255,305
Special Occupation Leases and Licenses ... ..	8,867	2,010	1,803	1,498	1,398	1,398
Homestead or Grazing Leases ... ..	286,425	3,442,557	3,634,233	3,832,648	3,901,011	3,897,471
Poison Land Leases or Licenses ... ..	1,306,270	72,194	56,862	52,286	47,252	47,252
Immigrants' Grants ... ..	400	...	...	...	...	...
Village Allotments ... ..	6	35	35	34	32	32
Working-men's Blocks... ..	31	617	590	584	565	558
<b>Total in Process of Alienation</b>	<b>6,116,266</b>	<b>13,755,787</b>	<b>13,853,630</b>	<b>14,079,386</b>	<b>13,584,076</b>	<b>13,284,721</b>

**WESTERN AUSTRALIA.—ALIENATION AND OCCUPATION OF CROWN LANDS, 1901 AND 1913-1917.—Continued.**

Particulars.	Area in Acres.					
	1901.*	1912-13.*	1913-14.*	1914-15.*	1915-16.*	1916-17.*
<b>3. Leases and Licenses in Force—</b>						
(i.) <i>Issued by Lands Department</i>						
Pastoral Leases ...	96,508,549	183,477,495	180,891,721	186,418,417	193,023,620	189,574,945
Special Leases ...	448	34,442	30,401	35,948	37,559	33,516
Leases of Reserves ...	5,296	3,402,605	2,136,072	2,129,118	2,301,587	1,582,174
Selections in Goldfields ...	3,955	100	100	...	...	...
Timber Leases and Licenses	865,180	775,769	658,146	1650,613	1654,550	1249,144
Timber Permits ...	...	761,790	411,191	1410,943	1608,594	1908,850
Residential Lots ...	550	318	224	267	268	274
(ii.) <i>Issued by Mines Department</i>						
Gold Mining Leases...	34,056	† 94,899	† 149,801	† 128,609	† 145,920	† 386,350
Mineral Leases ...	8,576					
Other Leases ...	8,623					
Licenses ...	17,397					
<b>Total under Leases and Licenses</b>	<b>97,450,660</b>	<b>188,547,418</b>	<b>184,277,656</b>	<b>189,773,915</b>	<b>196,772,098</b>	<b>192,735,253</b>
<b>4. Area Unoccupied</b> ...	<b>517,552,996</b>	<b>414,678,836</b>	<b>418,662,195</b>	<b>412,727,562</b>	<b>406,106,997</b>	<b>410,292,742</b>

Total area of State—624,588,800 acres.

\* Figures are now given as up to the 30th June, instead of as up to 31st December. Figures for previous years may be obtained from the Statistical Registers of Western Australia. † On the 31st December.

7. **Tasmania.**—Of the total area of Tasmania, namely, 16,777,600 acres, there were at the end of the year 1916, 5,179,865 acres, or about three-tenths, alienated absolutely; 1,244,014 acres, or about one-thirteenth, were in process of alienation; 1,954,585 acres, or nearly one-ninth, were occupied under leases and licenses for either pastoral, agricultural, timber, or mining purposes; the remaining 8,399,136 acres, or about one-half, being unoccupied. The following table shews the areas alienated, in process of alienation, and held under lease or license, and the area unoccupied at the end of the year 1901 and from 1912 to 1916:—

**TASMANIA.—ALIENATION AND OCCUPATION OF CROWN LANDS, 1901 and 1912-16.**

Particulars.	Area in Acres.					
	1901.	1912.	1913.	1914.	1915.	1916.
<b>1. Alienated Absolutely</b> ...	4,621,585	5,005,175	5,051,112	5,085,868	5,125,197	5,179,865
<b>2. In Process of Alienation</b> ...	272,376	1,310,728	1,290,705	1,248,844	1,225,924	1,244,014
<b>3. Leases or Licenses—</b>						
(i.) <i>Issued by Lands Department—</i>						
Islands ...	149,165	135,025	134,908	135,000	204,630	207,630
Ordinary Leased Land ...	1,280,688	1,245,400	1,280,400	1,400,300	1,452,068	1,434,113
Land Leased for Timber ...	40,768	136,471	160,216	162,631	120,832	146,881
Closer Settlement ...	—	46,217	*45,572	*52,800	*66,307	*65,781
(ii.) <i>Issued by Mines Department</i>	50,362	79,239	45,913	52,376	53,060	53,462
(iii.) <i>Occupied by Commonwealth and State Departments</i> ...	...	...	7,121	8,498	14,315	16,026
(iv.) <i>Reserved for Public Purposes</i> ...	...	...	63,000	68,000	95,000	96,473
<b>Total</b> ...	<b>1,520,983</b>	<b>1,642,352</b>	<b>1,691,558</b>	<b>1,826,805</b>	<b>1,939,905</b>	<b>1,954,585</b>
<b>4. Total Area Occupied</b> ...	<b>6,414,944</b>	<b>7,958,255</b>	<b>8,033,375</b>	<b>8,161,517</b>	<b>8,291,026</b>	<b>8,378,464</b>
<b>5. Area Unoccupied</b> ...	<b>10,362,656</b>	<b>8,819,345</b>	<b>8,744,225</b>	<b>8,616,083</b>	<b>8,486,574</b>	<b>8,399,136</b>

Total area of State—16,777,600 acres.

\* Included in 1. *Alienated Land*.

8. **Northern Territory.**—On the 1st January, 1911, the Northern Territory was taken over by the Commonwealth. In the Northern Territory at the end of the year 1916, there were 475,542 acres, or only about one seven-hundred-and-fifth part alienated absolutely; 110,669,918 acres, or about one-third, were held under leases and licenses; while the remaining 223,971,340 acres, or nearly two-thirds, were unoccupied. The following table shews the area of land alienated absolutely, and also the area under lease:—

**NORTHERN TERRITORY.—ALIENATION AND OCCUPATION OF CROWN LANDS.**  
1901 and 1912-16.

Particulars.	Area in Acres.					
	1901.	1912.	1913.	1914.	1915.	1916.
<b>1. Alienated—</b>						
Sold ... ..	473,230	473,942	473,942	474,422	474,542	475,494
Granted for Public Purposes ...	48	48	48	48	48	48
<b>Total Alienated ... ..</b>	<b>473,278</b>	<b>473,990</b>	<b>473,990</b>	<b>474,470</b>	<b>474,590</b>	<b>475,542</b>
<b>2. Leased—</b>						
Right of Purchase ... ..	1,067	667	667	436	436	436
Pastoral ... ..	111,476,240	94,329,600	93,748,100	104,370,160	113,813,329	110,560,129
Other Leases ... ..	1,176,981	1,696,171	1,762,533	88,637	112,562	109,353
<b>Total Leased ... ..</b>	<b>112,654,288</b>	<b>96,026,438</b>	<b>95,511,305</b>	<b>104,459,233</b>	<b>113,926,627</b>	<b>110,669,918</b>
<b>3. Total Occupied ... ..</b>	<b>113,127,566</b>	<b>96,500,428</b>	<b>95,985,295</b>	<b>104,933,703</b>	<b>114,401,217</b>	<b>111,145,460</b>
<b>4. Remainder Unoccupied* ...</b>	<b>221,969,234</b>	<b>238,616,372</b>	<b>239,131,505</b>	<b>230,183,097</b>	<b>220,715,583</b>	<b>223,971,340</b>

Total area of Northern Territory—335,116,800 acres.

\* Including Aboriginal and other reserves, and Mission stations.

## § 12. Classification of Holdings according to Size.

1. **General.**—The classification of holdings according to their area is of interest chiefly in relation to the efforts made by the several States in recent years to promote settlement on the land on blocks of suitable size, especially by means of the Closer Settlement Acts. Returns shewing such a classification are not available for Queensland and the Northern Territory.

The following table gives particulars of the number of holdings in area series, as returned to the collectors of agricultural and pastoral statistics, for all the States, excepting Queensland, to the latest available date. The figures necessarily fall short of those given in preceding tables relating to total alienations.

**CLASSIFICATION OF HOLDINGS (ONE ACRE AND OVER) IN AREA SERIES,  
1916-17.\***

Size of Holdings.	N.S.W.†	Victoria. ‡	S. Aust.	W. Aust.	Tas- mania.	N. Territory ‡	Federal Territory	C'with. §
NUMBER.								
Acres.								
1 and under 50	40,033	18,757	7,272	3,813	4,393	...	36	74,303
50 " 100	8,586	7,356	1,867	620	2,293	4	26	20,752
100 " 500	26,405	24,735	6,016	3,267	5,134	19	65	65,641
500 " 1,000	9,326	10,181	4,057	3,605	727	4	27	27,927
1,000 " 5,000	7,971	5,364	4,006	4,146	672	...	34	22,193
5,000 " 10,000	942	267	127	268	167	...	4	1,775
10,000 " 20,000	411	116	43	82	69	...	...	721
20,000 " 50,000	233	34	24	28	35	...	2	356
50,000 and over ...	76	1	...	4	3	...	...	84
Total... ..	93,983	66,811	23,412	15,833	13,492	27	194	213,752

**AREA.**

Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1 and under 50	501,402	356,959	114,832	46,073	75,502	...	725	1,005,493
50 " 100	677,346	558,534	137,761	52,842	165,002	307	1,987	1,593,779
100 " 500	6,795,814	6,359,230	1,688,212	884,027	1,085,101	4,170	16,657	16,826,211
500 " 1,000	6,544,181	7,123,402	2,907,033	2,947,114	5,06,661	2,560	20,508	20,051,459
1,000 " 5,000	15,895,070	9,552,404	6,988,489	8,155,529	1,434,600	...	57,031	42,083,123
5,000 " 10,000	6,468,693	1,825,862	925,991	1,640,613	825,176	...	31,605	11,817,940
10,000 " 20,000	5,677,826	1,609,045	533,847	1,134,896	965,103	...	...	9,980,717
20,000 " 50,000	6,879,609	992,521	693,597	774,961	930,852	...	62,502	10,334,042
50,000 and over ...	6,665,022	51,400	...	335,415	332,503	...	...	7,384,341
Total... ..	56,097,964	28,429,357	14,049,762	16,171,470	6,320,500	7,037	191,015	121,267,105

\* See 1. General above. † For the year 1915-16. ‡ For the year 1912-13. § Exclusive of Queensland.

**2. New South Wales.**—The total number of holdings of one acre and over in area in this State on the 31st March, 1901, was 69,439. On the 31st March, 1916, the corresponding number was 93,983, shewing an increase of about 35 per cent. The following table shews the number of holdings for which returns were received for 1900-1 and the five years 1911-12 to 1915-16, figures later than those for 1915-16 not being available:—

**NEW SOUTH WALES.—CLASSIFICATION OF HOLDINGS (ONE ACRE AND  
OVER) IN AREA SERIES, 1901 and 1912-16.\***

Size of Holdings.	1900-01.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
Acres.	Number.	Number.	Number.	Number.	Number.	Number.
1 to 50	28,155	38,211	38,641	39,268	39,602	40,033
51 " 100	8,929	9,027	8,955	8,923	8,771	2,586
101 " 500	20,504	25,964	26,251	26,493	26,576	26,405
501 " 1,000	6,105	8,329	8,616	8,842	9,068	9,326
1,001 " 5,000	4,464	6,394	7,287	7,529	7,777	7,971
5,001 " 10,000	579	825	853	889	928	942
10,001 " 20,000	352	371	379	394	389	411
20,001 " 50,000	202	247	245	235	231	233
50,001 and over	149	84	86	82	78	76
Total	69,439	89,992	91,313	92,655	93,420	93,983

\* See 1. General above.

3. **Victoria.**—The following table shews the number and area of holdings on the 1st March of those years for which figures are available :—

**VICTORIA.—CLASSIFICATION OF HOLDINGS (ONE ACRE AND OVER) IN  
AREA SERIES, 1906-1912.\***

Size of Holdings.				1906.	1908.	1910.	1912.
Acres.				Number.	Number	Number.	Number.
1 to	50	...	...	13,309	14,692	16,609	18,757
51 "	100	...	...	5,864	6,223	6,696	7,356
101 "	500	...	...	21,628	22,510	23,397	24,735
501 "	1,000	...	...	7,688	7,817	8,216	10,181
1,001 "	5,000	...	...	4,083	4,409	4,908	5,364
5,001 "	10,000	...	...	220	231	239	267
10,001 "	20,000	...	...	116	118	131	116
20,001 "	50,000	...	...	73	61	42	34
50,001 and over		...	...	6	4	2	1
Total				52,987	56,065	60,240	66,811

\* See 1. General above.

4. **South Australia.**—In the State of South Australia the classification of holdings was available for the first time in 1910-11. The following table shews the number and area of such holdings for that year and the last four years :—

**SOUTH AUSTRALIA.—CLASSIFICATION OF HOLDINGS (ONE ACRE AND OVER).  
IN AREA SERIES, 1910-11 to 1916-17.\***

Size of Holdings.				1910-11.	1913-14.	1914-15.	1915-16.	1916-17.
Acres.				Number.	Number.	Number.	Number.	Number.
1 to	50	...	...	6,745	6,757	7,013	7,195	7,272
51 "	100	...	...	1,646	1,726	1,778	1,793	1,867
101 "	500	...	...	5,542	5,806	5,801	6,033	6,016
501 "	1,000	...	...	3,370	3,707	3,835	3,977	4,057
1,001 "	5,000	...	...	2,540	3,196	3,417	3,794	4,006
5,001 "	10,000	...	...	110	112	114	125	127
10,001 "	20,000	...	...	53	42	41	42	43
20,001 "	50,000	...	...	23	22	23	24	24
50,001 and over		...	...	1	1	1	...	...
Total				20,030	21,369	22,023	22,983	23,412

\* See 1. General above.

5. **Western Australia.**—In this State the number of holdings of one acre and over in area was 5699 for the season 1900-1 (see Year Book No. 1), and 15,833 for the season 1916-17, shewing an increase of 10,134, or 177 per cent. The subjoined table shews the classification of holdings for which agricultural and pastoral returns were received for 1901 and 1913-1917 :—

**WESTERN AUSTRALIA.—CLASSIFICATION OF HOLDINGS (ONE ACRE AND OVER)  
IN AREA SERIES, 1901 and 1913-17.\***

Size of Holdings.	1900-1.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
Acres.	Number.	Number.	Number.	Number.	Number.	Number.
1 to 50 ...	1,728	3,656	3,820	4,031	3,898	3,813
51 „ 100 ...	198	609	608	645	640	620
101 „ 500 ...	2,302	3,320	3,354	3,349	3,370	3,267
501 „ 1,000 ...	717	3,465	3,569	3,676	3,687	3,605
1,001 „ 5,000 ...	607	3,545	3,912	4,025	4,229	4,146
5,001 „ 10,000 ...	73	213	240	235	254	268
10,001 „ 20,000 ...	38	82	82	93	82	82
20,001 „ 50,000 ...	36†	28	27	25	27	28
50,001 and over ...	...	7	8	7	7	4
Total ...	5,699	14,925	15,620	16,086	16,194	15,833

\* See 1. General above.

† Including all holdings of 20,001 acres and upwards.

6. **Tasmania.**—In Tasmania the total number of holdings for which returns were received as on the 1st March, 1909, was 12,113. Particulars for previous years are not available. The following table shows the classification of such holdings in area series for 1912-13 and subsequent years :—

**TASMANIA.—CLASSIFICATION OF HOLDINGS (ONE ACRE AND OVER)  
IN AREA SERIES, 1912-13 to 1916-17.\***

Size of Holdings.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
Acres.	Number.	Number.	Number.	Number.	Number.
1 to 50 ...	4,752	4,402	4,416	4,403	4,392
51 „ 100 ...	2,378	2,271	2,306	2,299	2,293
101 „ 500 ...	5,161	5,088	5,165	5,148	5,134
501 „ 1,000 ...	705	721	731	729	727
1,001 „ 5,000 ...	634	667	676	674	672
5,001 „ 10,000 ...	123	116	168	167	167
10,001 „ 20,000 ...	62	69	70	69	69
20,001 „ 50,000 ...	28	34	35	35	35
50,001 and over ...	1	3	3	3	3
Total ...	13,844	13,371	13,570	13,527	13,492

\* See 1. General above.

### § 13. The Progress of Land Settlement, 1901 to 1916.

1. **Recent Progress.**—The progress of settlement and the growth of land alienation in the States of the Commonwealth under recent legislation is seen in the subjoined statement, which shews concisely the condition of the public estate in each State and in the Commonwealth, at the end of 1901 and of each year from 1912 to 1916 inclusive. The effect of the land laws during that period has been generally to diminish the number of large holdings, at the same time decreasing the area held under lease, while both the area alienated and the area in process of alienation have increased. As leases of large areas fall in or are otherwise terminated they are in many cases not renewed, but the land is then cut up for the purpose of settlement under systems of deferred payment; the

State Governments, also, have in many cases acquired by repurchase considerable areas under the provisions of the various Closer Settlement Acts. Further, greater facilities have been granted to the working classes to acquire possession of the soil, and special inducements have been offered to *bond fide* settlers by the introduction of new forms of tenure on easy terms and conditions.

From 1901 to 1916 the area alienated absolutely in the whole Commonwealth increased by 29,528,583 acres, or 39 per cent.; the area in process of alienation increased by 20,761,769 acres, or 59 per cent.; the area leased by 159,939,966 acres, or 22 per cent.; while the area unoccupied decreased by 210,230,318 acres, or 20 per cent.

### TOTAL AREA ALIENATED, IN PROCESS OF ALIENATION, HELD UNDER LEASE OR LICENSE AND UNOCCUPIED,

EXPRESSED ABSOLUTELY AND AS PERCENTAGES OF AREA OF ENTIRE STATE FOR THE YEARS 1901 AND 1912-16.

Year.	Alienated.		In Process of Alienation.		Held under Lease or License.		Occupied by the Crown or Unoccupied.*	
	Area in Acres.	Per Cent.	Area in Acres.	Per Cent.	Area in Acres.	Per Cent.	Area in Acres.	Per Cent.
NEW SOUTH WALES.—AREA, 198,054,420 ACRES.								
1901†	26,443,554	13.32	21,595,688	10.87	127,055,370	63.96	23,543,468	11.85
1912†	39,211,268	19.75	17,341,434	8.75	126,064,031	63.65	15,437,687	7.85
1913†	39,584,685	19.98	18,233,338	9.21	124,590,163	62.91	15,646,284	7.90
1914†	39,825,380	20.11	18,837,261	9.51	122,305,284	61.75	17,086,475	8.63
1915†	40,100,492	20.25	19,064,618	9.62	121,796,091	61.50	17,093,219	8.63
1916†	40,363,316	20.38	19,409,656	9.80	118,865,868	60.02	19,415,580	9.80
VICTORIA.—AREA, 56,245,760 ACRES.								
1901	20,066,875	35.67	3,730,351	6.63	17,110,709	30.42	\$15,337,825	\$27.28
1912	23,856,389	42.41	7,198,531	12.79	14,443,191	25.67	\$10,747,649	\$19.13
1913	24,009,440	42.68	7,162,516	12.73	13,230,211	23.54	\$11,843,593	\$21.05
1914	24,138,965	42.92	7,362,890	13.09	13,325,416	23.69	\$11,418,489	\$20.30
1915	24,256,222	43.12	8,075,653	14.36	13,035,612	23.18	\$10,788,373	\$19.34
1916	24,345,425	43.29	7,751,415	13.78	12,479,853	22.19	\$11,669,067	\$20.74
QUEENSLAND.—AREA, 429,120,000 ACRES.								
1901	13,533,468	3.15	2,791,664	0.65	280,023,979	65.26	132,770,889	30.94
1912	15,874,202	3.69	9,577,037	2.23	317,615,144	74.01	86,053,617	20.07
1913	16,041,763	3.74	10,039,255	2.34	322,337,898	75.11	80,701,084	18.81
1914	16,244,541	3.79	10,586,914	2.47	331,499,708	77.25	70,788,837	16.49
1915	16,447,382	3.83	10,776,793	2.51	332,824,905	77.56	69,070,920	16.10
1916	16,570,590	3.86	10,566,829	2.46	326,192,702	76.02	75,789,879	17.66
SOUTH AUSTRALIA.—AREA, 243,244,800 ACRES.								
1901	7,535,123	3.10	553,774	0.23	85,591,295	35.18	149,564,608	61.49
1912	10,252,746	4.22	1,782,451	0.73	115,829,476	47.62	115,380,127	47.43
1913	10,418,974	4.28	2,032,635	0.84	116,275,067	47.79	114,518,124	47.09
1914	10,506,471	4.32	2,410,137	0.99	115,986,348	47.68	114,341,844	47.01
1915	10,590,756	4.35	2,943,395	1.21	115,396,433	47.44	114,314,216	47.00
1916	10,571,580	4.35	3,181,422	1.31	115,638,145	47.54	113,853,653	46.80

\* Including roads and reserves. † To 31st December; subsequent years to 30th June.

‡ Exclusive of Commonwealth Territory. § Including Mines Department leases and licenses.

## TOTAL AREA ALIENATED, IN PROCESS OF ALIENATION, ETC.—Continued.

Year.	Alienated.		In Process of Alienation.		Held under Lease or License.		Occupied by the Crown or Unoccupied.*	
	Area in Acres.	Per Cent.	Area in Acres.	Per Cent.	Area in Acres.	Per Cent.	Area in Acres.	Per Cent.

## WESTERN AUSTRALIA.—AREA, 624,588,800 ACRES.

1901	3,468,878	0.56	6,116,266	0.98	97,450,660	15.60	517,552,996	82.86
1912†	7,387,929	1.18	13,405,369	2.16	175,677,865	28.13	428,117,637	68.53
1913†	7,606,759	1.21	13,755,787	2.20	188,547,418	30.18	414,678,836	66.41
1914†	7,795,319	1.25	13,853,630	2.22	184,277,656	29.50	418,662,195	67.03
1915†	8,007,937	1.28	14,079,386	2.26	189,773,915	30.38	412,727,562	66.08
1916†	8,125,629	1.30	13,584,076	2.18	196,772,098	31.50	406,106,997	65.02

## TASMANIA.—AREA, 16,777,600 ACRES.

1901	4,621,585	27.54	272,376	1.62	1,520,983	9.06	10,862,656	61.78
1912	5,005,175	29.83	1,310,728	7.82	1,642,352	9.78	8,819,345	52.57
1913	5,051,112	30.09	1,290,705	7.68	1,691,558	10.05	8,744,225	52.18
1914	5,085,868	30.31	1,248,844	7.44	1,826,805	10.89	8,616,083	51.36
1915	5,125,197	30.55	1,225,924	7.31	1,939,905	11.56	8,486,574	50.58
1916	5,179,865	30.87	1,244,014	7.42	1,954,585	11.65	8,399,136	50.06

## NORTHERN TERRITORY.—AREA, 335,116,800 ACRES.

1901	473,278	0.14	...	...	112,654,288	33.62	221,989,234†	66.24
1912	473,990	0.14	...	...	96,026,438	28.66	238,616,372†	71.20
1913	473,990	0.14	...	...	95,511,305	28.60	239,131,505†	71.26
1914	474,470	0.14	...	...	104,459,233	31.17	230,183,097†	68.69
1915	474,590	0.14	...	...	113,926,627	33.99	220,715,583†	65.87
1916	475,978	0.14	3,497	...	109,151,309	32.57	225,486,016†	67.29

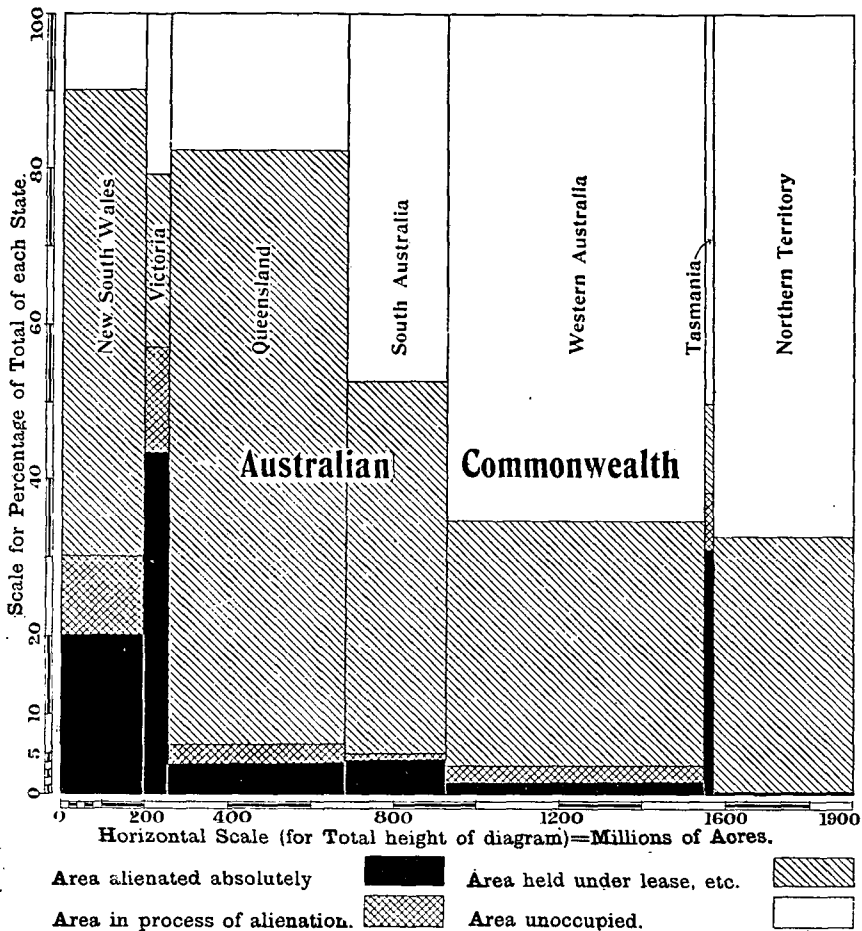
## THE COMMONWEALTH.§—AREA, 1,903,731,840 ACRES.

1901	76,142,761	4.00	35,060,119	1.84	721,407,284	37.89	1,071,121,676	56.27
1912	102,746,699	5.40	51,977,451	2.73	858,932,085	45.11	890,075,605	46.76
1913	104,474,882	5.44	52,717,936	2.76	858,148,026	45.08	889,390,996	46.72
1914	104,612,364	5.50	54,842,786	2.88	878,981,142	46.17	865,295,548	45.45
1915	105,422,053	5.54	56,096,476	2.94	893,054,138	46.91	849,159,173	44.61
1916	105,671,344	5.55	55,821,888	2.93	881,347,250	46.30	860,891,358	45.22

\* Including roads and reserves. † To 30th June. ‡ Including aboriginal reserves and mission stations. § Including Federal Capital Territory.

2. Diagram shewing Condition of Public Estate.—The following diagram shews the condition of the public estate in the Commonwealth at the end of the year 1916. The square itself represents the total area of the Commonwealth, while the relative areas of individual States are shewn by the vertical rectangles. The areas alienated absolutely, in process of alienation under systems of deferred payments, and the areas held under leases or licenses, are designated by the differently-shaded areas as described in the reference given below the diagram, while the areas unoccupied are left unshaded:—





3. **Federal Territory.** The following particulars relate to the tenures of land within the Federal Capital Territory at the end of the year 1917:—

**FEDERAL CAPITAL TERRITORY, TENURES OF LAND, 1917.**

					Acres.
Area of acquired lands	...	...	{	Leased	154,220 acres
				Unoccupied	48,834 "
Lands alienated	...	...	...	...	41,000
In process of alienation (conditional purchases and conditional leases)	...	...	...	...	79,323
Held under lease issued by the State	...	...	...	...	177,309
Unoccupied lands (roads, reserves, etc.)	...	...	...	...	82,974
Total Area of Territory					583,660

## SECTION VII.

## PASTORAL PRODUCTION.

## § 1. Initiation and Growth of Pastoral Industry.

1. **Early Statistics.**—In earlier issues of the Year Book will be found a brief reference to the pastoral industry in Australia prior to the year 1860. (See Year Book No. 6, page 330.)

2. **Subsequent Statistics.**—While the statistical records of live stock in Australia prior to the year 1860 are somewhat defective, from that year onwards fairly complete particulars are available in most of the States. At the present time, statistics of live stock are collected annually in all the States, principally through the agency of the police, but in the years 1885 to 1888 inclusive, and 1893 to 1895 inclusive, these particulars were not collected in South Australia, and similar gaps occur in the Victorian records for the periods 1895 to 1899 inclusive, and 1901 to 1903. In order to obtain totals for the Commonwealth for these years the missing numbers have been supplied by interpolation. The results so obtained probably differ but slightly from the actual numbers for the respective years.

3. **Increase in Numbers.**—Particulars concerning the numbers of each of the principal kinds of live stock in the Commonwealth at quinquennial intervals from 1860 to 1910, and thence onwards in single years, are given in the following table, and are shewn continuously in the graphs hereinafter.

During the fifty-six years covered by the table the live stock of the Commonwealth increased considerably, horses by 465 per cent., cattle 164 per cent., sheep 281 per cent., and pigs 187 per cent. The average annual increases which these aggregates represent are as follows:—Horses, 3.14 per cent.; cattle, 1.75 per cent.; sheep, 2.42 per cent.; and pigs, 1.90 per cent.

## COMMONWEALTH LIVE STOCK, 1860 to 1916.

Year.	Horses.	Cattle.	Sheep.	Pigs.
1860 ... ..	431,525	3,957,915	20,135,286	351,096
1865 ... ..	566,574	3,724,813	29,539,928	345,704
1870 ... ..	716,772	4,276,326	41,593,612	543,388
1875 ... ..	835,393	6,389,610	53,124,209	549,808
1880 ... ..	1,061,078	7,523,000	62,176,027	815,776
1885 ... ..	1,143,064	7,397,847	67,491,976	748,908
1890 ... ..	1,521,588	10,299,913	97,881,221	891,138
1895 ... ..	1,680,419	11,767,488	90,689,727	822,750
1900 ... ..	1,609,654	8,640,225	70,602,995	950,349
1905 ... ..	1,674,790	8,528,331	74,540,916	1,014,977
1910 ... ..	2,165,866	11,744,714	92,047,015	1,025,850
1911 ... ..	2,279,027	11,828,954	93,003,521	1,110,721
1912 ... ..	2,408,113	11,577,259	83,263,686	845,255
1913 ... ..	2,521,983	11,483,882	85,057,402	800,505
1914 ... ..	2,521,272	11,051,573	78,600,334	862,447
1915 ... ..	2,377,920	9,931,416	69,257,189	753,693
1916 ... ..	2,437,157	10,459,237	76,668,604	1,006,763

4. **Fluctuations.**—The increases referred to, however, have not been continuous, marked fluctuations having taken place during the period, mainly on account of the droughts which have from time to time left their impress on the pastoral history of Australia. These were in evidence in 1869, 1877, 1884, 1895 and subsequent years, 1902, to some extent in 1908, and in a severer form during the earlier half of 1912, and again during 1914 and 1915. The falling-off in the number of sheep in 1915 was 9,343,145, of cattle 1,120,157, of horses 144,252, and of pigs 108,754, being 11.91, 10.14, 5.72 and 12.61 per cent. respectively. The number of horses for the year 1913 was the highest ever recorded in the Commonwealth. The winter of 1913 was dry over Southern Australia, though the crops subsequently recovered under the influence of fine spring rains, but in 1914 and 1915, very pronounced drought conditions developed—enveloping the whole of sub-tropical Australia (except the New South Wales coast) during 1914, and all the Central and North-eastern parts of the continent in 1915. Throughout many parts of Western Australia, South Australia, the Riverina, Victoria, and Tasmania, the year 1914 was the driest on record, and similarly throughout a large part of Queensland and North-eastern New South Wales, 1915 was the worst year ever experienced. The result was a general failure of the crops throughout the wheat belt in 1914, heavy stock losses, the failure of the sugar crops of the East Coast and of a large proportion of the cereal crops on the Downs in Queensland.

The extraordinary recuperative power of Australia is reflected in the large increases in the numbers of stock which occurred in the good seasons supervening on the various droughts. Thus, in the nine years from 1902 to 1911, horses increased by 754,426, cattle by 4,766,212, and sheep by 39,335,174, the corresponding increases per cent. per annum being horses 4.57 per cent., cattle 5.90 per cent., and sheep 6.30 per cent.

The years in which the numbers of live stock attained their maxima are as follows:—Horses, 1913, 2,521,983; cattle, 1894, 12,311,617; sheep, 1891, 106,421,068; and pigs, 1911, 1,110,721.

5. **Live Stock in Relation to Population.**—The number of each kind of live stock per head of the population of the Commonwealth has varied during the past fifty-six years in the manner shown in the succeeding table:—

NUMBER OF LIVE STOCK PER HEAD OF POPULATION, 1860 to 1916.

Year.	Horses.	Cattle.	Sheep.	Pigs.	Year.	Horses.	Cattle.	Sheep.	Pigs.
1860	0.38	3.45	17.58	0.31	1905	0.42	2.11	18.48	0.25
1865	0.41	2.68	21.25	0.25	1910	0.49	2.65	20.80	0.23
1870	0.43	2.60	25.24	0.33	1911	0.50	2.59	20.36	0.24
1875	0.44	3.37	27.99	0.29	1912	0.51	2.45	17.59	0.18
1880	0.48	3.37	27.87	0.37	1913	0.52	2.36	17.46	0.16
1885	0.42	2.75	25.05	0.28	1914	0.51	2.24	15.91	0.17
1890	0.48	3.27	31.06	0.28	1915	0.48	2.01	14.04	0.15
1895	0.48	3.36	25.93	0.24	1916	0.50	2.15	15.73	0.21
1900	0.43	2.29	18.75	0.25					

Considered in relation to population, the live stock attained its maximum in the period 1890-5, and its minimum in the year 1902. During the period under review, the number of horses varied but slightly in proportion to population, the range being from 0.38 to 0.52 per head. In the case of cattle, the limits of variation were 1.82 and 3.45; sheep, 13.85 and 31.06; and pigs, 0.15 and 0.37.

6. **Live Stock in Relation to Area.**—The numbers of live stock per square mile in the several States and Territories of the Commonwealth are given in the following table:—

## NUMBER OF LIVE STOCK PER SQUARE MILE.

States and Territories.	Date.	Horses.	Cattle.	Sheep.	Pigs.
New South Wales ...	30th June, 1917...	2.37	8.91	116.62	1.16
Victoria ...	1st March, 1917...	5.85	13.37	143.10	2.90
Queensland ...	31st Dec., 1916 ...	1.04	7.11	23.15	0.19
South Australia ...	30th June, 1917...	0.63	0.76	13.40	0.31
Western Australia ...	31st Dec., 1916 ...	0.17	0.89	5.67	0.09
Tasmania ...	1st March, 1917...	1.63	6.84	64.95	2.30
Northern Territory...	31st Dec., 1916 ...	0.04	0.80	0.09	0.001
Federal Territory ...	30th June, 1917...	1.55	8.76	117.17	0.28
Commonwealth ...	1916-17 ...	0.82	3.52	25.77	0.34

7. **Minor Classes of Live Stock.**—The numbers of minor classes of live stock returned for 1916-17, were as follows:—Goats, 224,401; camels, 11,904; mules and donkeys, 11,713; and ostriches, 1194. Of these, goats were most numerous in Queensland, camels, mules, and donkeys in Western Australia, and ostriches in South Australia. In the raising of goats, considerable attention has in recent years been devoted to the angora goat and its product—mohair, and over 20,000 angora goats are included in the total of 224,401 goats shewn above. Of these, 7360 were in New South Wales, and 4462 in Queensland, while the quantity of mohair produced in the latter State in 1916 was set down at 4012 lbs., and the number of skins placed on the market was returned as 587.

8. **Net Exports of Principal Pastoral Products.**—The quantities by which the exports of the principal pastoral products of the Commonwealth exceeded the imports for the years 1912 to 1916-17 are as follows:—

**QUANTITIES OF NET EXPORTS OF PRINCIPAL PASTORAL PRODUCTS  
OF THE COMMONWEALTH, 1912 to 1916-17.**

Products.	Unit of Quantity.	1912.	1913.	1914-15. †	1915-16. †	1916-17. †
<b>Animals (living)—</b>						
Cattle ...	No.	16,050	14,548	10,121	5,417	2,743
Horses ...	"	7,055	7,761	23,655	14,589	14,228
Sheep ...	"	31,210	33,322	10,749	728	3,198
Bones ...	cwt.	20,885	37,948	33,802	16,378	26,884
Glue Pieces and Sinews	"	33,023	38,297	30,689	23,222	26,973
Glycerine ...	lb.	*	*	*	*	*
Hair ...	"	152,369	279,108	206,602	554,971	514,752
Hoofs ...	cwt.	10,416	12,476	11,012	8,347	10,497
Horns ...	"	*	*	*	*	*
<b>Meats—</b>						
Frozen Beef ...	lb.	142,186,123	218,911,159	292,056,035	114,654,569	242,040,115
" Mutton and Lamb	"	115,365,547	204,919,042	193,263,877	38,332,651	66,811,253
" Rabbits and Hares	pair	6,494,259	9,366,290	10,290,016	11,367,538	12,674,472
" Other...	lb.	4,797,512	7,685,149	13,107,560	3,004,290	10,773,154
Potted and Extract of	"	*	*	*	*	*
Preserved in Tins, etc.	"	33,571,112	51,731,741	57,326,285	13,059,238	21,922,630
Other...	"	2,957,745	1,154,580	298,019	130,672	35,833
Sausage Casings	"	*	*	*	*	*
<b>Skins—</b>						
Hides ...	No.	746,088	10,037,882	1,134,483	453,691	99,154
Sheep ...	"	10,650,834	10,997,873	10,396,987	7,254,642	4,753,464
Rabbit and Hare	cwt.	87,878	86,998	56,437	51,857	48,403
Other, including Undressed Furs	No.	*	*	*	*	*
Tallow ...	cwt.	1,058,341	1,435,156	1,106,023	250,519	555,427
Wool—Greasy ...	lb.	557,683,801	531,248,798	443,812,275	408,461,233	331,776,079
Scoured ...	"	60,232,936	60,873,478	60,846,240	74,880,215	51,727,629
Tops ...	"	3,018,050	3,561,722	4,095,966	4,961,975	4,869,452

\* Quantity not available.

† For year ended 30th June.

The values of the net exports for the same five years are furnished in the next table, and amount to no less a total than £190,985,255 for the period, or an average of £38,197,051 per annum, of which wool represents 68 per cent. Meats, skins, and tallow rank next in order of importance.

**VALUE OF NET EXPORTS OF PRINCIPAL PASTORAL PRODUCTS OF THE  
COMMONWEALTH, 1912 to 1916-17.**

Products.	1912.	1913.	1914-15.*	1915-16.*	1916-17.*
<b>Animals (living)—</b>	<b>£</b>	<b>£</b>	<b>£</b>	<b>£</b>	<b>£</b>
Cattle ... ..	64,233	50,229	19,558	10,089	4,582
Horses ... ..	—28,017	63,389	378,505	185,183	306,200
Sheep ... ..	61,879	46,565	14,204	—17,507	8,474
Bones ... ..	12,310	22,021	20,918	10,009	20,783
Glue Pieces and Sinews ... ..	18,139	23,328	17,641	12,815	21,416
Glycerine ... ..	13,621	13,769	13,900	16,078	26,459
Hair ... ..	29,950	28,160	26,445	26,684	26,802
Hoofs ... ..	4,922	6,178	4,156	2,361	6,363
Horns ... ..	30,339	30,444	15,300	6,379	4,191
<b>Meats—</b>					
Frozen Beef ... ..	1,630,306	2,652,144	4,989,810	2,175,343	4,945,716
„ Mutton and Lamb ... ..	1,592,302	2,896,292	3,413,846	769,434	1,545,546
„ Rabbits and Hares ... ..	320,887	497,568	531,920	724,624	913,142
„ Other ... ..	59,706	99,509	180,841	30,248	195,546
Potted and Extract of ... ..	60,779	203,412	347,471	31,467	65,471
Preserved in Tins, etc. ... ..	611,288	1,062,618	1,829,601	438,881	952,369
Other ... ..	12,944	17,677	4,375	3,195	1,151
Sausage Casings ... ..	8,735	32,133	25,372	—21,726	1,210
<b>Skins—</b>					
Hides ... ..	871,953	1,418,191	1,234,871	266,674	184,886
Sheep ... ..	1,988,122	2,480,900	1,743,209	1,242,358	1,137,832
Rabbit and Hare ... ..	576,179	620,487	230,139	261,868	433,546
Other, including Undressed Furs ... ..	647,959	746,023	106,319	253,458	190,738
Tallow ... ..	1,545,033	2,157,610	1,566,907	436,225	1,241,219
<b>Wool—Greasy ... ..</b>	<b>22,066,585</b>	<b>21,472,360</b>	<b>17,470,385</b>	<b>20,172,243</b>	<b>21,870,118</b>
Scoured ... ..	3,957,792	4,380,184	4,113,951	5,841,054	5,394,259
Tops ... ..	323,259	415,670	511,021	680,656	1,204,570
<b>Total Values ... ..</b>	<b>36,481,245</b>	<b>41,436,861</b>	<b>38,811,167</b>	<b>33,558,093</b>	<b>40,697,889</b>

\* For year ended 30th June. Note. — signifies net imports.

## § 2. Horses.

1. **Suitability of Australia for Horse-breeding.**—From the earliest times the suitability of the climate and pastures of Australia for the production of serviceable breeds of horses has been fully recognised. By the importation of high-class sires, and the careful selection of breeding mares, these natural advantages were utilised to the fullest extent, all classes of horses being bred. As a consequence of this combination of advantages, the Australian horse, whether of the heavy draught, medium weight, or light saddle and carriage variety, compares more than favourably with the product of other lands. The Australian horse has been found suitable for the army in India, and large numbers are obtained annually for remount purposes.

2. **Distribution throughout the Commonwealth.**—As regards numbers, the State of New South Wales, the earliest settled of the group, established a lead, which it retained up to the end of 1913. For some years past Queensland has made rapid progress in this regard, and in 1914 there were 742,159 horses in that State, as compared with 731,735 in New South Wales, and 552,053 in Victoria. The 1915 and 1916 figures, however, shew that New South Wales has regained the lead. Particulars for the several States for a series of years are as follows:—

**NUMBER OF HORSES IN STATES, TERRITORIES, AND COMMONWEALTH,  
1860 to 1916.**

Year.	N.S.W.	Victoria. ‡	Q'sland.	S. Aust.	W. Aust.	Tas. ‡	N. T.	Fed. Terr.	Common- wealth.
1860...	251,497	76,536	23,504	49,399	9,555	21,034	...	...	431,525
1865...	282,587	121,051	51,091	73,993	15,700	22,152	...	...	566,574
1870...	337,597	167,220	83,358	83,744	22,174	22,679	...	...	716,772
1875...	357,696	196,184	121,497	107,164	29,379	23,473	...	...	835,393
1880...	395,984	275,516	179,152	148,219	34,568	25,267	*2,372	...	1,061,078
1885...	344,697	304,098	260,207	164,753	34,392	28,610	6,307	...	1,143,064
1890...	444,163	436,459	365,812	187,686	44,384	31,165	11,919	...	1,521,588
1895...	499,943	424,995	468,743	181,839	58,506	31,580	14,813	...	1,680,419
1900...	481,417	392,237	456,788	166,790	68,253	31,607	12,562	...	1,609,654
1905...	506,884	385,513	430,565	197,099	97,397	37,101	20,231	...	1,674,790
1910...	650,636	472,080	593,813	249,326	134,114	41,388	24,509	...	2,165,866
1911...	687,242	507,813	618,954	259,719	140,277	41,853	21,407	1,762	2,279,027
1912...	714,952	530,494	674,573	276,539	147,629	44,039	18,382	1,505	2,408,113
1913...	744,458	562,331	706,472	283,641	156,636	43,941	22,792	1,712	2,521,983
1914...	†731,735	552,053	742,159	267,877	161,625	42,232	21,985	†1,606	2,521,272
1915...	†718,232	493,779	686,871	253,333	163,016	41,422	19,957	†1,310	2,377,920
1916...	†732,334	514,403	697,517	†257,422	169,730	42,620	21,674	†1,457	2,437,157

\* Statistics not collected prior to 1880. ‡ 1st March year following † 30th June year following.

3. **Proportion in the Several States and Territories.**—The percentages of the numbers of horses in the several States and Territories on the total for the Commonwealth for 1901 and the past five years are as follows:—

**PERCENTAGE OF HORSES IN EACH STATE AND TERRITORY ON THE TOTAL  
FOR COMMONWEALTH, 1901 and 1912 to 1916.**

Year.	N.S.W.	Victoria.	Q'sland.	S. Aust.	W. Aust.	Tas.	North'n Terr.	Fed. Terr.	Common- wealth.
	%	%	%	%	%	%	%	%	%
1901...	30.03	23.90	28.52	10.20	4.55	2.00	0.80	...	100.00
1912...	29.69	22.03	28.01	11.48	6.13	1.83	0.77	0.06	100.00
1913...	29.52	22.30	28.01	11.25	6.21	1.74	0.90	0.07	100.00
1914...	29.02	21.90	29.44	10.62	6.41	1.68	0.87	0.06	100.00
1915...	30.20	20.77	28.89	10.65	6.86	1.74	0.84	0.05	100.00
1916...	30.05	21.11	28.62	10.56	6.96	1.75	0.89	0.06	100.00

During the period under review, the proportion in Western Australia has increased, that in Victoria has diminished, while in the case of the other States the proportion in 1916 was practically identical with that in 1901.

4. **Oversea Export Trade in Horses.**—Australia's export trade in horses is fairly considerable, though somewhat fluctuating. During the past five years it has varied in number between 8,562 for the year 1913 and 24,107 in 1914-15, and in value between £163,730 in the former and £459,978 during the latter year. The total number of horses exported during the five years, exclusive of those shipped for military purposes, amounted to 73,598, an average of 14,720 per annum. The total value of the exports for the period was £1,433,260, or £286,652 per annum. The average export value per head for the period was £19 9s. 6d. The numbers exported to the principal countries concerned in this trade are as follows:—

**NUMBER AND DESTINATION OF HORSES EXPORTED FROM THE COMMONWEALTH,  
1912 to 1916-17.**

Country to which Exported.	1912.	1913.	1914-15.	1915-16.	1916-17.	Total for 5 years.
	No.	No.	No.	No.	No.	No.
India ... ..	7,299	6,775	21,162	14,405	15,744	65,385
Java ... ..	584	799	65	280	148	1,876
Straits Settlements ... ..	410	436	24	174	224	1,268
Fiji ... ..	146	106	117	257	223	849
Philippine Islands ... ..	247	88	...	8	5	348
Ceylon ... ..	156	3	...	...	15	174
New Zealand ... ..	77	90	52	37	40	296
Mauritius ... ..	46	95	...	...	...	141
Japan ... ..	41	59	16	35	16	167
Papua ... ..	56	57	9	2	35	159
Siam ... ..	...	...	...	...	34	34
China ... ..	25	...	...	...	...	25
Union of South Africa ... ..	13	8	3	...	1	25
Other Countries ... ..	107	46	2,659	11	28	2,851
<b>Total ... ..</b>	<b>9,207</b>	<b>8,562</b>	<b>*24,107</b>	<b>*15,209</b>	<b>*16,513</b>	<b>73,598</b>

\* Exclusive of shipment for military purposes.

The corresponding particulars relative to the value of the horses exported are given in the next table :—

**VALUE OF HORSES EXPORTED FROM THE COMMONWEALTH, 1912 to 1916-17.**

Country to which Exported.	1912.	1913.	1914-15.	1915-16.	1916-17.	Total for 5 years.
	£	£	£	£	£	£
India ... ..	129,186	107,925	387,046	250,710	312,271	1,187,138
Java ... ..	13,459	21,465	1,243	5,352	3,818	45,337
Straits Settlements ... ..	11,322	11,614	555	3,755	6,427	33,673
Fiji ... ..	3,642	3,215	3,337	6,653	5,814	22,661
Philippine Islands ... ..	5,449	2,061	...	1,200	60	8,770
Ceylon ... ..	3,403	840	...	...	450	4,693
New Zealand ... ..	11,435	5,319	9,765	7,232	11,190	44,941
Mauritius ... ..	1,358	3,229	...	...	...	4,587
Japan ... ..	2,650	2,836	875	1,900	850	9,111
Papua ... ..	899	1,271	171	65	663	3,069
Siam ... ..	...	...	...	...	541	541
China ... ..	625	...	...	...	...	625
Union of South Africa ... ..	695	211	60	...	160	1,126
Other Countries ... ..	5,421	3,744	56,926	244	653	66,988
<b>Total ... ..</b>	<b>189,544</b>	<b>163,730</b>	<b>*459,978</b>	<b>*277,111</b>	<b>*342,897</b>	<b>*1,433,260</b>

\* Exclusive of shipment for military purposes.

Consequent on the greater demand for remounts for the Indian Army, a large increase took place in the number of horses exported to that country during the last three years. Of the 2659 horses exported to "Other Countries" during 1914-15—2270, valued at £50,075, were shipped to France. In addition to the exports shewn in the above tables, there were 36,966 horses, valued at £743,940, shipped from the Commonwealth for military purposes from the commencement of the war to 30th June, 1917.

The number of horses imported into the Commonwealth is comparatively small, consisting mainly of valuable animals introduced for breeding purposes, and imported principally from New Zealand and the United Kingdom. The average value per head of the horses imported during the last five years was £122 10s. 2d., as compared with £19 9s. 6d. per head for the exports for the same period. The average number imported per annum was, however, only 862, and the average annual value £105,600. The following table furnishes a comparison of imports and exports of horses during 1901 and each of the five years 1912 to 1916-17:—

**COMMONWEALTH IMPORTS AND EXPORTS OF HORSES, 1901 and 1912 to 1916-17.**

Year.	Imports.		Exports.		Net Exports.	
	No.	Value.	No.	Value.	No.	Value.
		£		£		£
1901 ...	246	19,601	32,474	438,248	32,228	418,647
1912 ...	2,152	217,561	9,207	189,544	7,055	28,017
1913 ...	801	100,341	8,562	163,730	7,761	63,389
1914-15...	452	81,473	24,107	459,978	23,655	378,505
1915-16...	620	91,928	15,209	277,111	14,589	185,183
1916-17 ...	285	36,697	16,503	342,897	16,218	306,200

Note. — signifies value of net imports.

5. **Comparison with other Countries.**—The numbers of horses in some of the leading horse-breeding countries of the world, according to the latest available returns, are as follows:—

**NUMBER OF HORSES IN SOME OF THE LEADING HORSE-BREEDING COUNTRIES IN THE WORLD.**

Country.	Date.	Number of Horses. 000 omitted.	Country.	Date.	Number of Horses. 000 omitted.
Russian Empire <sup>3</sup> ...	1914	35,846	Sweden ...	1914	608
Utd. States America <sup>4</sup> ...	1916	21,126	Uruguay ...	1908	556
Argentine Republic <sup>5</sup> ...	1913	9,366	Spain ...	1914	525
Brazil ...	1913	7,289	Denmark ...	1916	515
Austria-Hungary <sup>1</sup> ...	1910-1913	4,380	Bulgaria ...	1910	478
Germany <sup>6</sup> ...	1915	3,342	Chile <sup>2</sup> ...	1912-13	458
Canada ...	1916	2,991	New Zealand ...	1916	374
Australia ...	1916	2,437	Finland ...	1910	361
France <sup>9</sup> ...	1914	2,317	Netherlands ...	1913	334
United Kingdom ...	1916	2,166	Belgium ...	1913	267
British India <sup>10</sup> ...	1913-14	1,643	Philippine Islands	1915	223
Japan ...	1914	1,579	Algeria ...	1912	221
Rumania ...	1916	1,219	Norway ...	1915	186
Italy <sup>11</sup> ...	1908	956	Serbia ...	1910	153
Mexico ...	1902	859	Switzerland ...	1916	137
Union of S. Africa <sup>12</sup> ...	1911	719	Portugal <sup>7</sup> ...	1906	88
Cuba ...	1914	673	Egypt <sup>8</sup> ...	1914	40

1. Austria 1910, Hungary 1913, Croatia-Slavonia 1911, Bosnia-Herzegovina 1910. 2. Also 38,000 mules and 33,000 asses. 3. Including Poland, Caucasus, and Siberia. 4. Also 4,639,000 mules. 5. Exclusive of army horses. 6. Also 584,000 mules. 7. Also 88,000 mules. 8. Also 22,000 mules and 632,000 asses. 9. Excludes invaded area. 10. Also 86,000 mules and 1,501,000 asses. 11. Also 388,000 mules and 860,000 asses. 12. Also 94,000 mules and 337,000 asses.



6. **Relation to Population.**—In proportion to population, horses are much more numerous in the Northern Territory than in any other of the principal divisions of the Commonwealth. Queensland is next in order, while Tasmania has the smallest number of horses per head. In all cases the number of horses per head of population was somewhat higher in 1916 than in 1901. Particulars for 1901 and the past five years are as follows :—

NUMBER OF HORSES PER HEAD OF POPULATION, 1901 AND 1912 to 1916.

Year.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N.T.	Federal Terr.	C'with.
1901	0.35	0.32	0.91	0.46	0.38	0.18	2.76	...	0.42
1912	0.40	0.38	1.06	0.64	0.48	0.22	5.29	0.78	0.51
1913	0.41	0.40	1.07	0.64	0.49	0.22	6.21	0.86	0.52
1914	0.39	0.39	1.10	0.61	0.50	0.21	5.53	0.87	0.51
1915	0.39	0.35	1.01	0.58	0.51	0.21	4.37	0.53	0.48
1916	0.39	0.37	1.04	0.60	0.55	0.21	4.55	0.66	0.50

### § 3. Cattle.

1. **Purposes for which Raised.**—In all the States of the Commonwealth, cattle raising is carried out on a more or less extensive scale, the main object in certain districts being the production of stock suitable for slaughtering purposes, and in others the raising of profitable dairy herds. The great impetus which the development of the export trade in Australian butter gave to the dairying industry in the Commonwealth led to a considerable increase in numbers and improvement in quality of the dairy herds of Victoria, New South Wales, and Southern Queensland in particular, the sub-tropical portion of Australia being apparently the best adapted to this industry. On the other hand, by far the finest specimens of beef-producing cattle are those raised in the tropical districts of the Commonwealth, *i.e.*, in the northern parts of Queensland, in the Northern Territory, and in the Kimberley districts in the north of Western Australia.

2. **Distribution throughout Commonwealth.**—Until 1880 New South Wales occupied the leading position in the Commonwealth group as a cattle-raising State, but in that year Queensland forged ahead and obtained a lead which it has since maintained. The extent of this lead has, however, varied considerably, owing principally to the effects produced by the tick fever and droughts, from both of which causes the Queensland herds suffered more severely than those of the other States. In fact, during the period from 1894, when the number of cattle in Queensland attained its maximum of rather more than 7,000,000, to 1903, when the number recorded was less than 2,500,000, an uninterrupted decline was experienced. During the eleven years ended 1914, however, a rapid improvement took place, and the total reached on 31st December, 1914, was over 5,450,000. Owing to drought conditions the number at the end of 1915 had fallen to 4,780,893, with a further decline to 4,765,657 at the end of 1916.

The numbers of cattle in the several States and the Territories at quinquennial intervals from 1860 to 1910 and for each subsequent year are as follows :—

**NUMBER OF CATTLE IN STATES, TERRITORIES, AND COMMONWEALTH,  
1860 to 1916.**

Year.	N.S.W.	Victoria. †	Q'land.	S. Aust.	W. Aust.	Tas. ‡	N.T.	Fed. Ter.	C'wealth.
1860	2,408,586	722,332	432,890	278,265	32,476	83,366	...	...	3,957,915
1865	1,961,905	621,337	848,346	158,057	45,148	90,020	...	...	3,724,813
1870	2,195,096	721,096	1,076,630	136,832	45,213	101,459	...	...	4,276,326
1875	3,134,086	1,054,598	1,812,576	219,240	50,416	118,694	...	...	6,389,610
1880	2,580,040	1,286,267	3,162,752	283,315	63,719	127,187	*19,720	...	7,523,000
1885	1,317,315	1,290,790	4,162,652	271,478	70,408	138,642	146,562	...	7,397,847
1890	2,091,229	1,782,978	5,558,264	359,938	130,970	162,440	214,094	...	10,299,913
1895	2,150,057	1,795,314	6,822,401	355,867	200,091	162,801	280,957	...	11,767,488
1900	1,983,116	1,602,384	4,078,191	214,761	338,590	165,516	257,667	...	8,640,225
1905	2,337,973	1,737,690	2,963,695	304,027	631,825	206,211	346,910	...	8,528,331
1910	3,140,307	1,547,569	5,131,699	384,862	825,040	201,854	513,383	...	11,744,714
1911	3,185,824	1,647,127	5,073,201	393,566	843,538	217,406	459,780	8,412	11,828,954
1912	3,033,726	1,508,089	5,210,891	383,418	806,294	222,181	405,552	7,108	11,577,259
1913	2,815,113	1,528,553	5,322,033	352,905	834,265	205,743	417,643	7,627	11,483,882
1914	2,472,631†	1,362,542	5,455,943	300,579	863,835	176,524	414,558	†4,961	11,051,573
1915	2,400,104†	1,043,604	4,780,893	226,565	821,048	169,575	483,961	†5,666	9,931,416
1916	2,757,713†	1,175,098	4,765,657	288,887†	863,930	179,360	420,362	†8,230	10,459,237

\* Statistics not collected prior to 1880. † 30th June year following.

‡ 1st March year following.

3. **Proportion in each State.**—During the period elapsing between 1901 and 1916 the proportion of cattle in the several States and the Northern Territory has varied considerably, as shewn hereunder :—

**PERCENTAGE OF CATTLE IN EACH STATE AND TERRITORY ON TOTAL FOR  
COMMONWEALTH, 1901 and 1912 to 1916.**

Year.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N.T.	Federal Territory.	C'wealth.
	%	%	%	%	%	%	%	%	%
1901 ...	24.11	19.12	44.43	2.65	4.69	1.99	3.01	...	100.00
1912 ...	26.20	13.03	45.01	3.31	6.97	1.92	3.50	0.06	100.00
1913 ...	24.51	13.31	46.34	3.07	7.27	1.79	3.64	0.07	100.00
1914 ...	22.37	12.33	49.37	2.72	7.82	1.60	3.75	0.04	100.00
1915 ...	24.17	10.51	48.14	2.28	8.27	1.71	4.87	0.05	100.00
1916 ...	26.37	11.23	45.57	2.76	8.26	1.71	4.02	0.08	100.00

A comparison of the positions of the several States in 1901 and 1916 shews that, while Victoria's proportion of the Commonwealth herds suffered considerable diminution, and those for Tasmania a falling-off to a slight extent, fairly large increases have taken place in Western Australia. New South Wales, Queensland and the Northern Territory also shewed an upward tendency.

4. **Imports and Exports of Cattle.**—Although the various products of the cattle-raising industry bulk largely in the export trade of the Commonwealth, the export of live cattle from Australia has never been considerable. The number of cattle imported is also small, consisting, as in the case of horses, mainly of valuable animals for breeding. Details are as follows :—

**COMMONWEALTH IMPORTS AND EXPORTS OF CATTLE, 1901 and 1912 to 1916-17.**

Year.	Imports.		Exports.		Net Exports.	
	No.	Value.	No.	Value	No.	Value.
		£		£		£
1901 ...	114	3,591	2,413	22,088	2,299	18,497
1912 ...	33	1,502	16,083	65,735	16,050	64,233
1913 ...	57	5,572	14,605	55,801	14,548	50,229
1914-15 ...	221	21,090	10,342	40,648	10,121	19,558
1915-16 ...	440	19,169	5,857	29,258	5,417	10,089
1916-17 ...	234	14,254	2,977	18,836	2,743	4,582

The average value of the cattle imported into the Commonwealth during the last five years was £62 10s. 6d. per head, while the average value of the cattle exported during the same period was £4 4s. 4d. As stated previously, the imported cattle were principally for stud purposes.

The comparatively large exports for the years 1912 and 1913 were due to shipments to Java and Philippine Islands valued at £42,230 and £61,766 respectively. The bulk of these cattle were exported from Western Australia.

**5. Cattle Slaughtered.**—Complete returns of the number of cattle slaughtered annually in the Commonwealth are not obtainable, as these particulars were collected in Tasmania prior to 1911 for Hobart and Launceston only, and were collected in South Australia for the first time in 1908 in respect of the year 1907. Estimates for these States have, however, been made, and the results are included in the following table:—

**CATTLE (INCLUDING CALVES) SLAUGHTERED IN STATES, TERRITORIES AND  
COMMONWEALTH, 1901 and 1912 to 1916.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas. †	N.T.	Fed. Ter.	C'wealth.
1901	335,823	251,477	377,433	*72,000	39,424	34,000	†	...	1,110,157
1912	612,773	368,512	580,332	113,344	59,695	41,000	\$4,061	267	1,779,984
1913	679,901	410,694	703,367	116,282	62,613	30,038	\$4,061	276	2,007,232
1914	635,196	470,011	776,869	112,183	61,387	30,064	*4,000	142	2,089,852
1915	384,977	356,174	653,015	82,070	65,121	28,586	*4,000	55	1,573,998
1916	393,400	247,781	578,203	63,167	59,038	25,972	*4,000	122	1,372,683

\* Estimated. † Partly estimated prior to 1913. ‡ Not available. § 1910 figures, those for 1911, 1912 and 1913 not available. || For year ended 30th June of year following.

**6. Export of Beef Preserved by Cold Process.**—A large export trade in beef preserved by cold process is carried on by the Commonwealth, mainly with the United Kingdom, the Philippine Islands, and the Union of South Africa. The quantities so exported during the five years 1912 to 1916-17 are as follows:—

**QUANTITY OF BEEF PRESERVED BY COLD PROCESS EXPORTED FROM THE  
COMMONWEALTH, 1912 to 1916-17.**

Country to which Exported.	1912.	1913.	1914-15.	1915-16.	1916-17.	Total for 5 years.
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
United Kingdom ...	108,886,860	169,963,291	253,396,440	108,906,118	239,384,893	880,537,602
Philippine Islands ...	13,996,124	14,535,447	11,352,425	4,089,865	548,398	44,522,259
United States ...	289	5,037,769	15,974,209	...	...	21,012,267
Union of South Africa ...	9,228,546	5,656,346	194,588	...	...	15,079,480
Egypt ...	2,084,806	3,990,804	4,281,049	109,969	...	10,466,628
Straits Settlements ...	1,781,817	2,053,514	2,260,587	1,411,876	1,691,256	9,199,050
Italy ...	2,127,876	6,356,514	170,159	...	...	8,654,549
Hawaiian Islands ...	1,198,140	2,356,115	1,538,997	...	200,396	5,293,648
Canada ...	904,632	3,352,675	60,540	...	...	4,318,047
Malta ...	1,090,044	1,142,092	1,338,439	...	...	3,570,575
Germany ...	97,491	1,813,799	...	...	...	1,911,290
Hong Kong ...	551,012	423,659	216,350	38,859	90,000	1,319,880
Gibraltar ...	...	353,582	487,289	...	...	840,871
Ceylon ...	150,620	221,521	210,903	1,330	83,752	668,126
Japan ...	1,098	36,705	...	...	...	37,803
Other countries ...	110,521	1,624,773	584,514	118,087	82,991	2,520,886
<b>Total ...</b>	<b>142,210,076</b>	<b>218,918,606</b>	<b>292,066,489</b>	<b>114,676,104</b>	<b>242,081,686</b>	<b>1,009,952,961</b>

The value of the beef preserved by cold process exported from the Commonwealth during the same years is as follows :—

**VALUE OF BEEF PRESERVED BY COLD PROCESS EXPORTED FROM  
THE COMMONWEALTH, 1912 to 1916-17.**

Country to which Exported.	1912.	1913.	1914-15.	1915-16.	1916-17.	Total for 5 years.
	£	£	£	£	£	£
United Kingdom ...	1,245,536	2,037,978	4,430,370	2,055,045	4,890,927	14,659,856
Philippine Islands ...	162,565	183,047	169,327	86,011	11,139	612,079
United States ...	5	66,838	209,938	...	...	276,781
Union of South Africa ...	97,601	65,906	2,500	...	...	166,007
Egypt ...	24,537	49,134	71,040	2,520	...	147,231
Straits Settlements ...	20,141	25,576	33,447	28,040	34,397	141,601
Italy ...	23,173	75,130	2,130	...	...	100,433
Hawaiian Islands ...	20,325	38,003	24,498	...	4,358	87,184
Canada ...	16,831	44,456	1,272	...	...	62,559
Malta ...	11,491	13,214	22,349	...	...	47,054
Germany ...	1,219	23,388	...	...	...	24,607
Hong Kong ...	4,346	4,392	2,924	764	1,850	14,276
Gibraltar ...	...	3,595	6,691	...	...	10,286
Ceylon ...	1,367	2,643	3,003	25	2,352	9,390
Japan ...	13	350	...	...	...	363
Other countries ...	1,591	18,625	10,565	3,489	2,047	36,317
<b>Total ...</b>	<b>1,630,731</b>	<b>2,652,275</b>	<b>4,990,054</b>	<b>2,175,894</b>	<b>4,947,070</b>	<b>16,396,024</b>

During the five years under review, the largest of Australia's customers for beef preserved by cold process has been the United Kingdom, while the second largest customer has been the Philippine Islands; the United States and the Union of South Africa ranked next in order of importance. Consequent on the war over 97½ per cent. was absorbed by the United Kingdom during the last two years, while most of the balance was shipped to the Straits Settlements and Philippine Islands. The exporting States during 1916-17 were:—Queensland, 226,255,373 lbs., valued at £4,587,296; New South Wales, 10,453,222 lbs., valued at £227,147; Victoria, 4,895,505 lbs., valued at £121,329; and South Australia, 477,586 lbs., valued at £11,298.

**7. Comparison with other Countries.**—In the following comparison of the herds of Australia with those of some of the principal cattle-raising countries of the world, the latest available figures have been inserted in each case :—

## NUMBER OF CATTLE IN VARIOUS COUNTRIES.

Country.	Date.	No. of Cattle. (000 omitted.)	Country.	Date.	No. of Cattle. (000 omitted.)
British India <sup>1</sup> ...	1913-14	143,277	Rumania <sup>1</sup> ...	1916	2,938
U. S. of America ...	1916	63,617	New Zealand ...	1916	2,575
Russian Empire <sup>2</sup> ...	1913	52,994	Netherlands ...	1915	2,390
Argentine Republic...	1913	30,796	Denmark ...	1915	2,290
Brazil ...	1913	30,705	Chile ...	1915	1,969
Germany ...	1915	20,317	Belgium ...	1913	1,849
Austria-Hungary <sup>2</sup> ...	1910-13	17,648	Philippine Islands ...	1915	1,756
France <sup>4</sup> ...	1916	12,724	Switzerland ...	1916	1,616
United Kingdom ...	1916	12,412	Bulgaria ...	1910	1,603
Australia ...	1916	10,459	Ceylon <sup>1</sup> ...	1914	1,484
Uruguay ...	1908	8,193	Japan ...	1914	1,387
Italy <sup>1</sup> ...	1914	6,646	Egypt <sup>1</sup> ...	1913	1,169
Canada ...	1916	5,917	Norway ...	1915	1,121
Union of South Africa	1911	5,797	Algeria ...	1912	1,107
Mexico ...	1902	5,142	Serbia ...	1910	957
Cuba ...	1914	3,395	Portugal ...	1906	703
Sweden ...	1914	2,761	Tunis ...	1915	269
Spain ...	1914	2,743			

1. Including buffaloes. 2. Austria 1910, Hungary 1913, Croatia-Slavonia 1911, and Bosnia-Herzegovina 1911. 3. Including Poland, Caucasus and Siberia. 4. Excludes invaded area.

8. **Relation to Population.**—The number of cattle per head of population differs considerably in the several States, and is also subject to marked variation from year to year in the same State. Particulars for 1901 and the past five years are as follows:—

## NUMBER OF CATTLE PER HEAD OF POPULATION, 1901 and 1912 to 1916.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W.Aust.	Tas.	Northern Territory.	Fed. Terr.	C'wealth.
1901 ...	1.49	1.34	7.44	0.63	2.06	0.96	54.68	...	2.22
1912 ...	1.71	1.09	8.19	0.89	2.63	1.13	116.71	3.66	2.45
1913 ...	1.54	1.08	8.06	0.82	2.60	1.02	113.74	3.84	2.36
1914 ...	1.33	0.95	8.06	0.68	2.67	0.88	104.34	3.57	2.24
1915 ...	1.29	0.74	7.04	0.52	2.58	0.84	106.06	2.30	2.01
1916 ...	1.48	0.84	7.12	0.67	2.80	0.90	88.18	3.70	2.15

For the Commonwealth as a whole the ratio of cattle to population is 3 per cent. less for 1916 than for 1901. An excess of the 1916 figures over those for 1901 is in evidence only in Western Australia, South Australia, and the Northern Territory, being most marked in the case of the latter. In all the other States the ratios for 1916, though shewing an increase over the previous year, are below those of 1901.

## § 4. Sheep.

1. **The Founding of the Commonwealth Pastoral Industry.**—Fortunately for Australia, the suitability of its climate and general conditions for the production of a high class of wool was, at an early date in the history of its settlement, surmised and tested by Captain Macarthur, one of the pioneer sheep-breeders of New South Wales. To the energy of this enterprising pastoralist is due in large measure the rapid and extremely satisfactory development of Australia as a producer of fine wool, and though

it would appear that the introduction of the Merino sheep into Australia was not due to Macarthur, a great deal of the credit for having successfully established the pastoral industry in Australia must certainly be his.

**2. Distribution throughout Commonwealth.**—With the exception of a short period in the early sixties, when the flocks of Victoria outnumbered those of the mother State, New South Wales has maintained amongst the Commonwealth group the lead in sheep production which naturally attached to it as the portion of the Commonwealth in which settlement was first effected. From 1878 to 1901, the number of sheep in New South Wales represented more than half the total for the Commonwealth. In subsequent years it has rarely fallen much below that proportion and has on several occasions exceeded it.

The number of sheep in the several States and Territories at quinquennial intervals from 1860 to 1910, and for each year onwards to 1916, is as follows:—

**NUMBER OF SHEEP IN STATES, TERRITORIES, AND COMMONWEALTH  
1860 to 1916.**

Year.	New South Wales.	Victoria. ‡	Queens- land.	South Aust.	Western Aust.	Tas- mania. ‡	Northern Territory	Federal Territory.	Total C'wealth.
1860	6,119,163	5,780,896	3,449,350	2,824,811	260,136	1,700,930	...	...	20,135,286
1865	8,132,511	8,835,380	6,594,966	3,779,308	445,044	1,752,719	...	...	29,539,928
1870	16,306,585	10,761,887	8,163,818	4,400,655	608,892	1,349,775	...	...	41,563,612
1875	25,353,924	11,749,532	7,227,774	6,179,395	881,661	1,731,723	...	...	53,124,209
1880	35,396,121	10,360,285	6,935,967	6,443,904	1,231,717	1,796,715	*9,318	...	62,176,027
1885	37,820,906	10,681,837	8,994,322	6,593,648	1,702,719	1,648,627	49,917	...	67,491,576
1890	55,986,431	12,692,643	18,007,234	7,004,642	2,524,913	1,619,256	45,902	...	97,881,321
1895	47,617,687	12,791,084	19,856,959	6,531,006	2,255,832	1,523,846	73,313	...	90,689,727
1900	40,020,506	10,841,790	10,339,185	5,235,220	2,434,311	1,683,956	48,027	...	70,602,995
1905	39,506,764	†1,455,115	12,535,231	6,277,812	3,120,703	1,583,561	61,730	...	74,540,916
1910	45,560,999	12,882,665	20,331,836	6,267,477	5,153,516	1,788,310	57,240	...	92,047,015
1911	44,722,523	13,857,804	20,740,981	6,171,907	5,411,542	1,823,017	50,983	224,764	93,003,521
1912	38,855,651	11,892,224	20,310,036	5,481,489	4,596,958	1,869,669	75,808	188,641	83,263,686
1913	39,701,345	12,113,682	21,766,600	5,073,057	4,421,375	1,745,356	67,109	148,875	85,057,402
1914	†32,874,359	12,051,685	23,129,919	4,202,461	4,456,186	1,674,845	70,900	†134,679	78,600,334
1915	†32,498,046	10,545,632	15,950,154	3,674,547	4,803,850	1,624,450	57,827	†102,683	69,257,189
1916	†36,086,241	12,376,587	15,524,293	†5,091,282	5,529,960	1,702,579	47,520	†110,142	76,668,604

\* Statistics not collected prior to 1880. † 30th June of year following.

‡ 1st March year following.

**3. Proportion in the Several States and Territories.**—Particulars concerning the relative positions of the several States and Territories with respect to the total flocks of Australia during the years 1901 and 1912 to 1916, and the variations in such positions which have taken place during those years are as hereunder:—

**PERCENTAGE OF SHEEP IN EACH STATE AND TERRITORY ON TOTAL FOR  
COMMONWEALTH, 1901 and 1912 to 1916.**

Year.	N.S.W.	Vic.	Q'sland.	S. Aust.	W. Aus.	Tas.	N.T.	Fed. Terr.	C'wealth.	
	%	%	%	%	%	%	%	%	%	
1901	...	58.10	14.82	13.92	6.95	3.65	2.49	0.07	...	100.00
1912	...	46.67	14.28	24.39	6.58	5.52	2.24	0.09	0.23	100.00
1913	...	46.68	14.24	25.61	5.96	5.20	2.05	0.08	0.18	100.00
1914	...	41.83	15.33	29.43	5.35	5.67	2.13	0.09	0.17	100.00
1915	...	46.92	15.23	23.03	5.30	6.94	2.35	0.08	0.15	100.00
1916	...	47.07	16.41	20.25	6.64	7.21	2.22	0.06	0.14	100.00

During the period, the proportion of total Commonwealth flocks declined considerably in the case of New South Wales, and in a less marked degree in South Australia and Tasmania, while in the cases of Queensland, Western Australia and Victoria, substantial advances in proportion were experienced.

4. **Oversea Imports and Exports of Sheep.**—As in the case of cattle, the oversea exports of live sheep from Australia are of comparatively small importance. The principal countries to which such exports have been consigned during recent years are the Union of South Africa, Straits Settlements, and Papua, Western Australia being the principal exporting State. The following are the particulars of the imports and exports for the years 1901 and 1912 to 1916-17 :—

**COMMONWEALTH IMPORTS AND EXPORTS OF SHEEP, 1901 and 1912 to 1916-17.**

Year.	Imports.		Exports.		Net Exports.	
	No.	Value.	No.	Value.	No.	Value.
		£		£		£
1901 ... ..	553	12,134	12,094	12,104	11,541	—30
1912 ... ..	2,903	10,643	34,113	72,522	31,210	61,879
1913 ... ..	8,448	28,508	41,770	75,073	33,322	46,565
1914-15... ..	6,140	23,622	16,889	37,826	10,749	14,204
1915-16... ..	6,597	36,511	7,325	19,004	728	—17,507
1916-17... ..	3,809	24,470	7,007	32,944	3,198	8,474

Note. — signifies net imports.

5. **Sheep Slaughtered.**—The numbers of sheep slaughtered in the several States during 1901 and from 1912 to 1916 are as follows :—

**SHEEP (INCLUDING LAMBS) SLAUGHTERED, 1901 and 1912 to 1916-17.**

Year.	N.S.W.	Victoria.	Q'land.	Sth. Aust.	W. Aust.	Tas.†	N.T.	Fed. Terr.	C'wealth.
1901	4,519,133	2,469,797	554,705	*678,000	428,534	322,000	...	...	8,972,169
1912	5,805,595	4,153,269	1,273,332	1,332,838	610,214	357,000	‡516	6,587	13,539,351
1913	6,420,810	4,742,231	1,375,827	1,222,315	602,383	315,726	‡516	4,765	14,684,573
1914	¶6,006,190	4,550,272	1,351,145	1,156,957	588,342	312,275	*500	¶4,351	13,970,032
1915	¶4,173,511	2,973,803	1,316,152	918,526	564,535	288,419	*500	¶3,376	10,238,822
1916	¶3,756,477	2,647,200	909,615	¶686,112	547,041	283,313	*500	¶2,975	8,833,233

\* Estimated. † Partly estimated. ‡ Figures for 1910; those for 1911, 1912, and 1913 not available. ¶ Year ended 30th June year following.

6. **Exports of Mutton and Lamb Preserved by Cold Process.**—Australia's export trade in mutton and lamb preserved by cold process has, in recent years, advanced rapidly. In 1903 the value of exports was £192,114, while seven years afterwards, in 1910, the value amounted to no less a sum than £2,161,513; the average for the two years, 1913 and 1914-15, was £3,155,190, while, consequent on the recent drought and war conditions, the value of the 1915-16 exports fell to £769,752, and to £1,540,572 in 1916-17. In all the States considerable attention is now being paid to the breeding of a class of sheep that will best meet the requirements of consumers. Crosses between the Merino and the Lincoln, or between the Merino and the Leicester breeds, have proved exceedingly valuable, as they furnish both a good quality of wool and an excellent carcase for export purposes. The breeding of Shropshire and Southdown sheep with a view to combining meat production with that of wool is also on the increase. Special attention is being paid to the raising of lambs, as it has become widely recognised that, with suitable breeds, the export trade in lambs is very profitable.

Australia's principal customer in this trade is the United Kingdom, which has absorbed 95 per cent. of the total quantity exported from the Commonwealth during the past

five years. As in the case of frozen beef, the bulk of the mutton and lamb exported during the last two years went to the United Kingdom. It amounted to 96.7 per cent. of the total, while the balance was shipped mainly to Straits Settlements, Ceylon, and Hong Kong.

**QUANTITY OF MUTTON AND LAMB PRESERVED BY COLD PROCESS EXPORTED  
FROM THE COMMONWEALTH, 1912 to 1916-17.**

Country to which Exported.	1912.	1913.	1914-15.	1915-16.	1916-17.	Total for 5 years.
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
United Kingdom ...	108,556,172	191,440,138	187,897,976	36,539,660	65,140,182	589,574,128
Germany ...	133,429	5,144,062	...	...	...	5,277,491
Straits Settlements ...	992,631	928,783	1,068,164	749,883	964,335	4,703,996
Union of South Africa ...	1,910,196	1,550,257	387,006	...	...	3,847,459
Canada ...	1,320,718	1,662,910	413,013	...	...	3,396,641
Egypt ...	624,506	633,109	902,604	319,156	...	2,479,375
Malta ...	266,036	1,059,183	798,996	...	...	2,124,214
Philippine Islands ...	677,076	778,693	370,296	132,134	35,608	1,993,807
Ceylon ...	293,523	365,065	304,115	302,839	234,130	1,549,672
Hong Kong ...	328,330	401,380	256,068	194,209	272,450	1,452,437
United States ...	2,051	571,008	195,225	...	...	768,284
Gibraltar ...	...	...	463,106	...	...	463,106
Hawaiian Islands ...	83,770	91,085	30,802	...	...	205,657
Japan ...	...	39	...	...	...	39
Other Countries ...	183,344	306,071	176,506	105,747	116,104	887,772
<b>Total ...</b>	<b>115,371,981</b>	<b>204,931,783</b>	<b>193,263,877</b>	<b>38,343,628</b>	<b>66,812,809</b>	<b>618,724,076</b>

The corresponding particulars concerning the values of the exports are:—

**VALUES OF FROZEN MUTTON AND LAMB EXPORTED FROM THE COMMONWEALTH,  
1912 to 1916-17.**

Country to which Exported.	1912.	1913.	1914-15.	1915-16.	1916-17.	Total for 5 years.
	£	£	£	£	£	£
United Kingdom ...	1,499,648	2,712,682	3,321,045	725,255	1,496,658	9,755,288
Straits Settlements ...	13,387	11,841	18,553	18,713	25,534	88,028
Germany ...	1,670	67,396	...	...	...	69,066
Canada ...	20,336	27,256	7,507	...	...	55,099
Union of South Africa ...	23,919	19,936	6,538	...	...	50,393
Egypt ...	8,282	9,435	16,577	7,719	...	42,013
Malta ...	3,228	14,142	12,920	...	...	30,290
Ceylon ...	4,448	5,091	5,346	7,524	7,250	29,659
Philippine Islands ...	9,271	9,649	6,212	3,039	965	29,136
Hong Kong ...	4,483	5,571	4,422	4,928	7,210	26,614
United States ...	35	7,793	3,066	...	...	10,894
Gibraltar ...	...	...	7,660	...	...	7,660
Hawaiian Islands ...	1,343	1,386	772	...	...	3,501
Japan ...	...	1	...	...	...	1
Other Countries ...	2,328	4,353	3,230	2,574	2,955	15,440
<b>Total ...</b>	<b>1,592,378</b>	<b>2,896,532</b>	<b>3,413,848</b>	<b>769,752</b>	<b>1,540,572</b>	<b>10,213,082</b>

**7. Comparison with other Countries.**—As regards the size of its flocks, and the quantity and quality of wool produced, Australia has long occupied a leading position amongst the sheep-raising countries of the world. From estimates published in the Year Book of the United States Department of Agriculture it would appear that the



approximate number of sheep in the world is in the neighbourhood of 614,000,000, to which total Australia contributes about 12½ per cent. The following comparison taken mainly from the same source, gives the latest available figures relative to the number of sheep in the principal wool-producing countries:—

#### NUMBER OF SHEEP IN VARIOUS COUNTRIES.

Country.	Date.	No. of Sheep. (000 omitted)	Country.	Date.	No. of Sheep. (000 omitted)
Argentine Republic ...	1913	81,485	Algeria ...	1912	8,338
Russian Empire <sup>1,2</sup> ...	1913	80,805	Rumania ...	1916	7,811
Australia ...	1916	76,669	Germany ...	1915	5,073
United States of America ...	1916	48,483	Chile ...	1913	4,602
Union of South Africa ...	1913	35,711	Serbia ...	1910	3,819
United Kingdom ...	1916	28,754	Greece ...	1914	3,547
Ottoman Empire ...	1912	27,095	Mexico ...	1902	3,424
Uruguay ...	1908	26,286	Portugal ...	1906	3,073
New Zealand ...	1917	25,270	Canada ...	1916	1,965
British India ...	1913 } 1914 }	23,092	Norway ...	1915	1,330
Spain ...	1914	16,128	Finland ...	1910	1,309
Italy <sup>1</sup> ...	1914	13,824	Tunis ...	1915	1,119
France <sup>4</sup> ...	1916	12,079	Sweden ...	1914	993
Austria-Hungary <sup>3</sup> ...	1910 } 1913 }	12,337	Netherlands ...	1913	842
Brazil ...	1913	10,653	Iceland ...	1912	601
Bulgaria ...	1910	8,632	Denmark ...	1915	533
			Belgium ...	1910	185
			Switzerland ...	1916	172

1. Including goats. 2. Including Poland, Caucasus, and Siberia. 3. Austria, Croatia-Slavonia and Bosnia-Herzegovina 1910; Hungary 1913. 4. Exclusive of invaded area.

8. **Relation to Population.**—The relation of the flocks of the several States and Territories to the populations at the end of the year 1901 and from 1912 to 1916 is as follows:—

#### NUMBER OF SHEEP PER HEAD OF POPULATION, 1901 and 1912 to 1916.

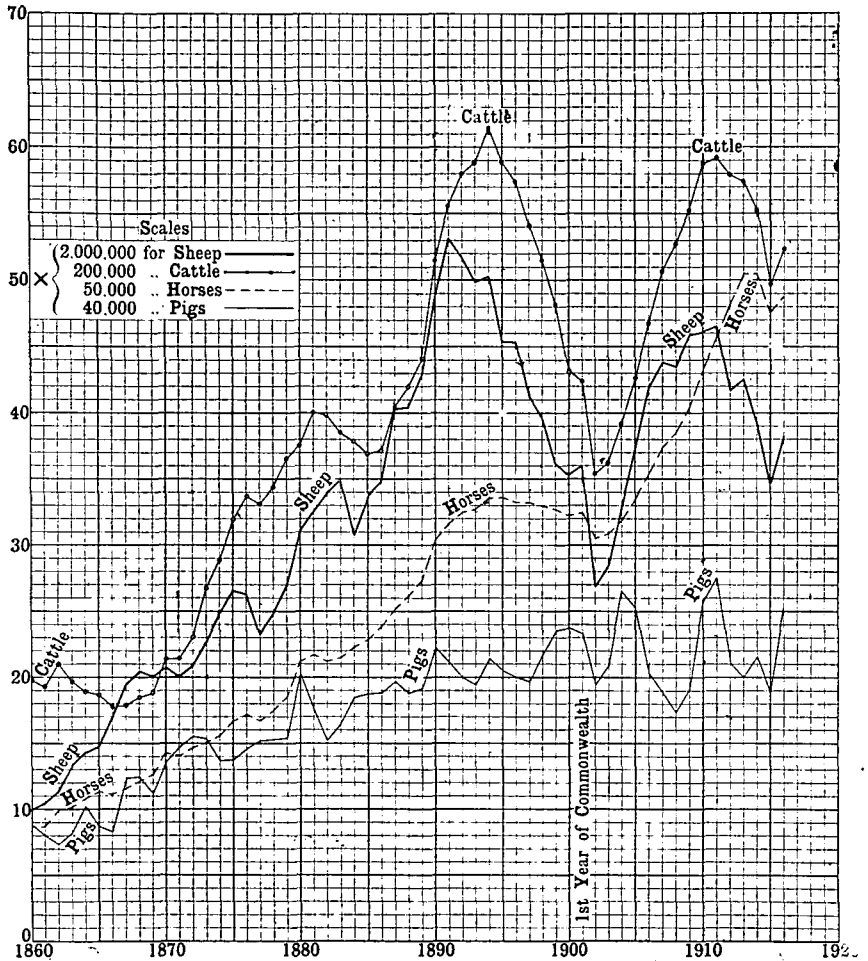
Year.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N.T.	Federal Ter.	C'wealth.
1901	30.43	8.82	19.80	13.95	13.56	10.23	10.34	...	18.83
1912	21.86	8.61	31.91	12.74	15.02	9.45	21.82	97.24	17.59
1913	21.67	8.58	33.00	11.53	13.79	8.65	18.28	74.89	17.46
1914	17.66	8.42	34.18	9.53	13.79	8.32	17.66	69.42	15.91
1915	17.42	7.43	23.50	8.88	15.11	8.08	12.67	41.64	14.04
1916	19.42	8.99	23.19	11.77	17.91	8.52	9.97	49.55	15.73

A comparison of the ratios of sheep to population for 1916 with those for 1901 discloses increases in the cases of Western Australia, Queensland and Victoria, and decreases in the other States and the Northern Territory.

### § 5. Wool.

1. **Importance of Wool Production.**—The chief contributing factor to the pastoral wealth of Australia is the production of wool, the value of the output for the season ended 30th June, 1917, being about £35,964,000. The bulk of the wool produced in the Commonwealth is exported, but with the increased activity of the local woollen mills there has, in recent years, been an increasing quantity used in Australia, although even now the quantity so used represents only 3½ per cent. of the whole clip.

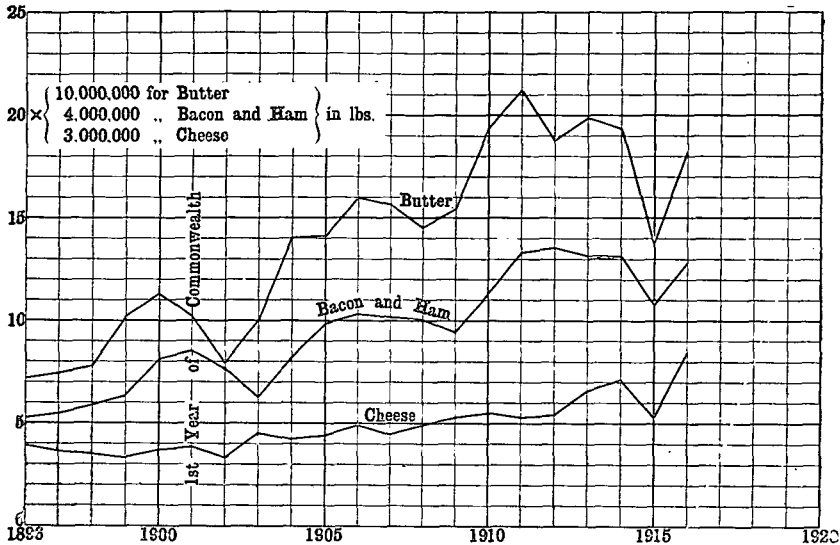
GRAPHS SHEWING NUMBER OF HORSES, CATTLE, SHEEP, AND PIGS IN THE COMMONWEALTH FROM 1860 TO 1916.



(See pages 305 *et seq.*)

**EXPLANATION OF GRAPH.**—The base of each small square represents an interval of one year. The totals of the sheep, cattle, horses, and pigs for the Commonwealth are indicated by the several curves or graphs, the vertical side of a small square representing 2,000,000 in the case of sheep; 200,000 for cattle; 50,000 for horses; 40,000 for pigs.

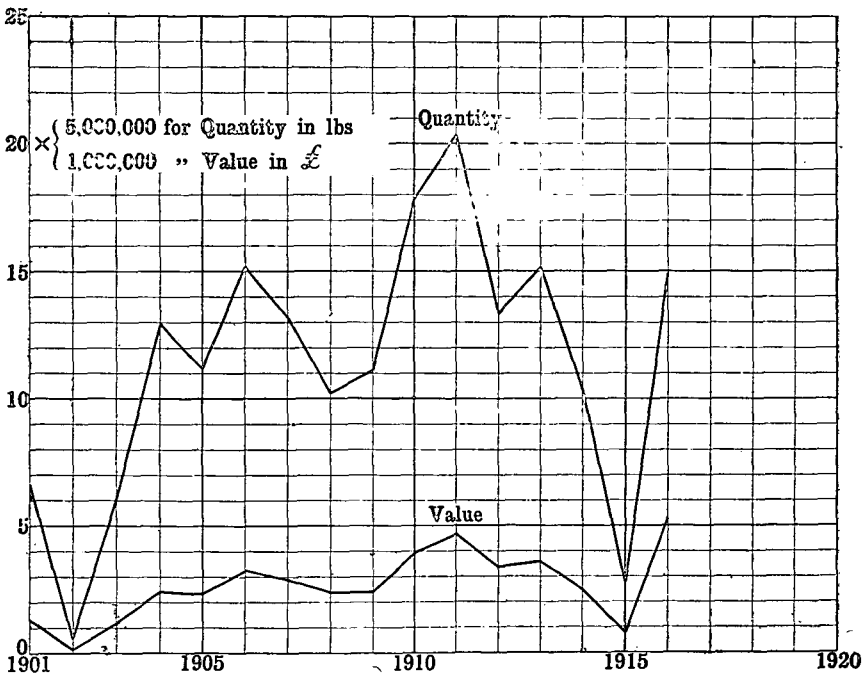
GRAPHS SHEWING THE PRODUCTION OF BUTTER AND CHEESE, AND BACON AND HAM, IN THE COMMONWEALTH, FROM 1896 TO 1916.



(See pages 339 and 402.)

EXPLANATION OF GRAPH.—The base of each small rectangle represents an interval of one year, and the vertical height of each small rectangle denotes in the case of butter 10,000,000 lbs.; in the case of bacon and ham, 4,000,000 lbs.; and in the case of cheese 3,000,000 lbs.

GRAPHS SHEWING THE QUANTITY AND VALUE OF NET EXPORTS OF BUTTER FROM THE COMMONWEALTH, FROM 1901 TO 1916.



(See page 400.)

EXPLANATION OF GRAPH.—The base of each small rectangle represents an interval of one year, and the vertical height of each small rectangle represents 5,000,000 lbs. in weight, or £1,000,000 in value.

**2. Greasy and Scoured Wool.**—For the purpose of comparing the clips of the several States or of the Commonwealth as a whole for a series of years, it is convenient to have the total production expressed in terms of greasy wool.

The quantity of Australian wool scoured and washed before export is, on the average, about 20 per cent. of the total clip. The loss of weight in scouring varies largely with season, locality, breed, and condition. It seems preferable to express "scoured and washed" wool in terms of "greasy" rather than *vice versa*, since the absolute error arising from uncertainty as to average loss of weight has thus the less effect.

In the following tables relative to the production of wool, "scoured and washed" wool has been converted into the estimated equivalent amount of "greasy" wool, on the assumption that two pounds of "greasy" wool are on the average required to produce one pound of "scoured and washed" wool.

**3. Total Production.**—The estimated production of wool in the several States, formerly based on the Customs returns, being no longer available from that source, an effort has been made to arrive at approximate figures from data collected by the State Statisticians from growers and fellmongers, etc. Particulars for years prior to 1910 will be found in earlier issues (see Year Book No. 6, page 346). The following table gives the estimates obtained in reference to the five seasons ended 30th June, 1913 to 1917:—

**ESTIMATED QUANTITY OF WOOL AS IN THE GREASE, SHORN, FELLMONGERED  
OR ON SKINS SHIPPED DURING THE SEASONS ENDED 30th JUNE, 1913 to 1917.**

State.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
	lbs.	lbs.	lbs.	lbs.	lbs.
New South Wales*	326,804,000	357,985,000	318,935,000	262,044,982	270,525,000
Victoria...	88,762,612	106,833,690	95,406,867	82,330,198	94,845,024
Queensland ...	136,878,270	154,183,114	155,478,740	130,783,277	102,220,125
South Australia ...	56,691,036	55,014,048	38,848,978	33,969,975	35,050,865
Western Australia	26,849,981	26,625,787	24,562,110	31,914,040	34,269,303
Tasmania	12,416,014	10,092,564	9,103,030	9,212,203	10,441,978
Northern Territory†	450,000	400,000	400,000	350,000	350,000
Commonwealth	648,851,913	711,134,203	642,734,725	550,604,675	547,702,295

\* Including Federal Territory. † Approximate figures.

It is to be noted that a shortage has apparently occurred in the collection of these statistics, the estimates falling considerably below the approximate totals obtained from oversea shipments of wool and skins, together with the quantity used in local manufactories. The Commonwealth total so obtained represented 668,667,078 lbs. for the season 1912-13, and 768,586,806 lbs. for 1913-14. The abnormal conditions of wool shipments obtaining during the last three seasons do not admit of any similar comparison with the estimated production.

The weight and value of wool per sheep shorn in the past five seasons is shewn in the following table:—

**ESTIMATED WEIGHT AND VALUE OF WOOL PER SHEEP SHORN FOR THE  
SEASONS ENDED 30th JUNE, 1913 to 1917.**

Season ended 30th June.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'wealth.
<b>WEIGHT.</b>							
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
1913 ...	7.07	5.68	6.46	7.95	5.29	5.91	6.66
1914 ...	7.94	6.46	7.19	8.37	5.49	5.15	7.37
1915 ...	7.20	5.58	6.75	6.98	5.31	5.00	6.68
1916 ...	7.09	5.79	6.37	7.65	6.17	5.29	6.63
1917 ...	7.89	6.26	7.00	7.47	5.84	5.79	6.96
<b>VALUE.</b>							
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
1913 ...	5 9	4 11	5 5	5 10	4 0	5 5	5 6
1914 ...	6 4	5 5	6 2	6 0	4 2	4 8	5 11
1915 ...	5 6	4 10	5 3	4 10	3 8	4 6	5 2
1916 ...	6 8	6 9	6 1	6 10	5 5	7 2	6 6
1917 ...	9 8	8 8	9 2	9 0	6 11	9 3	9 2

**4. Wool Locally Used.**—The quantity of wool used in the manufactories of the several States of the Commonwealth during the past five calendar years was approximately as follows:—

**LOCALLY USED WOOL, ESTIMATED AS "GREASY," COMMONWEALTH AND  
STATES, 1912 to 1916.**

State.	1912.	1913.	1914.	1915.	1916.
	lbs.	lbs.	lbs.	lbs.	lbs.
New South Wales ...	2,420,000	2,484,446	*4,173,576	*6,467,800	*6,556,988
Victoria ...	5,535,483	5,917,410	6,118,450	11,052,250	*8,669,460
Queensland ...	583,892	406,829	356,553	377,538	358,504
South Australia ...	710,000	645,000	389,700	1,065,180	995,164
Western Australia ...	...	...	...	...	...
Tasmania ...	1,082,000	1,105,000	1,141,200	1,217,780	1,244,844
Commonwealth ...	10,331,375	10,558,685	12,179,479	20,180,498	17,824,960

\* Year ended 30th June, year following.

**5. Bounties on Combed Wool or Tops Exported.**—Under the Bounties Act 1907, bounties were payable on combed wool or tops exported from the Commonwealth, provided they were produced therein. The maximum amount to be paid might not exceed a total of £10,000 per annum; any unexpended sum might be carried forward and be available for the years following. For the three years commencing 1st January, 1909, the rate of bounty granted was 1½d. per lb., and for the two years commencing 1st January, 1912, 1d. per lb. was payable for all combed wool or tops produced; thenceforward to the end of 1915, 1d. per lb. was payable up to 1,000,000 lbs. to any one manufacturer during a year, and ¾d. per lb. in excess of that quantity. No bounties have been paid on combed wool or tops since 1915. During the year 1908-9, an amount of £326 was paid in bounties, in 1909-10, £4,933, in 1910-11, £8,522, in 1911-12, £16,898, in 1912-13, £13,061, in 1913-14, £12,706, in 1914-15, £7,727, and in 1915-16, £5,828. The quantities of wool on which these amounts were paid were 52,085; 789,216; 1,363,555; 3,122,244; 3,134,614; 3,068,170; 3,635,811 and 2,824,436 lbs. respectively.

Figures shewing the exports of wool tops for the years 1912 to 1916-17 inclusive will be found on the next page.

6. **Exports of Wool.**—During the two calendar years prior to the war, about 38 per cent. of the exports of wool from the Commonwealth was despatched to the United Kingdom, whereas the shipments for the same destination during the past three years have averaged over 66 per cent. The percentage for the past five years was just under 55 per cent. The other leading consignees were France, the United States of America, Japan, Italy, and, prior to the war, Germany and Belgium. The following table shews for the years 1912 to 1916-17 the quantities of "greasy" wool exported from the Commonwealth and the principal countries to which consigned :—

**COMMONWEALTH EXPORTS OF WOOL IN THE GREASE, 1912 to 1916-17.**

Country to which Exported.	1912.	1913.	1914-15.	1915-16.	1916-17.	Total for 5 Years.
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
United Kingdom ...	211,386,638	185,387,090	319,614,894	202,384,381	233,446,361	1,202,219,164
France ...	151,555,672	159,782,827	12,787,863	13,746,706	12,254,213	350,127,281
Germany ...	107,523,165	94,068,893	3,036,083	...	...	204,628,141
United States of America ...	8,686,125	14,666,551	61,731,511	115,112,628	16,174	200,512,989
Belgium ...	54,679,915	51,881,724	2,984,856	...	...	109,546,495
Italy ...	4,856,997	5,778,424	18,191,774	43,167,206	25,608,163	97,602,564
Japan ...	9,339,817	7,199,671	22,670,413	34,725,863	16,839,727	90,775,491
Austria-Hungary ...	7,908,480	11,731,933	829,746	...	...	20,470,159
Canada ...	126,517	88,916	951,452	453,950	727,923	2,348,758
India ...	390,536	501,827	443,451	198,228	297,218	1,831,260
New Zealand ...	147,794	101,104	541,513	11,059	...	801,470
Other Countries ...	1,231,062	247,918	170,474	1,452,965	32,471	3,134,890
<b>Total...</b>	<b>557,832,718</b>	<b>531,436,878</b>	<b>443,953,830</b>	<b>411,252,986</b>	<b>339,222,250</b>	<b>2,283,698,662</b>

Similar particulars concerning the exports of "scoured and washed" wool are as follows :—

**COMMONWEALTH EXPORTS OF "SCOURED AND WASHED WOOL,"\***

1912 to 1916-17.

Country to which Exported.	1912.	1913.	1914-15.	1915-16.	1916-17.	Total for 5 Years.
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
United Kingdom ...	28,303,314	26,176,484	48,171,821	37,569,727	46,917,307	187,140,653
France ...	15,037,742	18,804,399	2,154,275	1,190,494	1,016,397	38,203,307
United States of America ...	49,849	124,301	4,557,800	27,933,634	...	32,665,584
Japan ...	2,750,614	3,564,433	6,141,036	7,499,571	5,081,183	25,036,837
Germany ...	10,541,771	10,135,857	1,748,008	...	154,172	22,579,808
Belgium ...	5,681,005	5,269,908	920,506	...	...	11,851,419
Italy ...	390,550	188,298	655,302	4,920,545	2,651,922	8,796,617
India ...	47,826	100,434	135,408	240,663	299,060	823,391
Austria-Hungary ...	69,036	62,932	147,864	...	...	299,832
New Zealand ...	42,927	11,042	1,879	104,864	...	160,712
Other Countries ...	347,472	11,998	315,392	426,553	567,059	1,668,474
<b>Total...</b>	<b>63,254,106</b>	<b>64,450,086</b>	<b>64,949,291</b>	<b>79,886,051</b>	<b>56,687,100</b>	<b>329,226,634</b>

\* Including "tops." See preceding page.

The figures for "scoured and washed wool" include tops, amounting in 1912 to 3,018,050 lbs., valued at £323,299; in 1913, 3,561,722 lbs., valued at £415,670; in 1914-15, 4,095,966 lbs., valued at £511,021; in 1915-16, 4,981,975 lbs., valued at £680,656; and in 1916-17, 4,869,452 lbs., valued at £1,204,570. In 1914-15, Japan took 4,052,965 lbs., valued at £506,161; in 1915-16, 4,894,577 lbs., valued at £665,442; and in 1916-17, 4,845,515 lbs., valued at £1,199,180.

The total value of the wool exported from the Commonwealth to the principal countries during the five years under review was :—

**TOTAL VALUE OF WOOL EXPORTED FROM THE COMMONWEALTH, 1912 to 1916-17.**

Country to which Exported.	1912.	1913.	1914-15.	1915-16.	1916-17.	Total for 5 Years.
	£	£	£	£	£	£
United Kingdom ... ..	10,418,577	9,456,636	15,413,174	12,608,971	23,431,942	71,329,300
France ... ..	6,527,854	7,429,856	694,751	952,026	963,097	16,567,584
United States of America ... ..	460,275	745,354	3,110,301	8,381,302	13,513	12,710,745
Germany ... ..	5,050,974	4,693,157	295,376	...	...	10,039,507
Japan ... ..	703,371	735,018	1,502,576	2,587,091	2,470,414	7,998,470
Italy ... ..	230,436	256,718	716,260	2,116,891	1,845,861	5,165,166
Belgium ... ..	2,480,348	2,386,892	187,755	...	...	5,054,995
Austria-Hungary ... ..	360,125	519,477	50,436	...	...	930,088
India ... ..	18,739	30,586	30,739	32,442	87,860	200,366
Canada ... ..	7,155	5,404	50,063	53,316	77,267	193,205
New Zealand ... ..	8,844	5,199	19,962	4,931	...	38,936
Other Countries ... ..	87,865	12,765	30,789	118,121	63,384	312,924
<b>Total ... ..</b>	<b>26,354,563</b>	<b>26,277,062</b>	<b>22,102,182</b>	<b>26,854,091</b>	<b>28,953,338</b>	<b>130,541,236</b>

**7. Care needed in Comparing Clips.**—The Customs returns prior to 1914-15 do not furnish a reliable indication of increase or decrease in successive clips, since in each case they relate to the year ended 31st December, and include imports and exports of wool belonging to two distinct clips. A further defect in the comparability of successive clips is due to the circumstance that owing to climatic or other conditions, the time of shearing may be so far delayed that one clip may include almost thirteen months' growth of wool, while the succeeding one may include little more than eleven months' growth.

**8. Wool-producing Countries in Southern Hemisphere.**—The next table, compiled by one of the leading English wool-broking firms, furnishes interesting evidence of the relative importance of the three great wool-producing areas of the Southern Hemisphere. The figures given represent for the respective years the imports of wool into Europe and North America:—

**IMPORTS OF WOOL INTO EUROPE AND NORTH AMERICA, 1901 and 1912 to 1916.**

Year.	Australia and New Zealand.	Cape Colony.	River Plate.	Total.	Average Value of Australasian and Cape Bales.
	Bales.	Bales.	Bales.	Bales.	£
1901 ...	1,745,000	217,000	532,000	2,494,000	10.5
1912 ...	2,463,000	463,000	497,000	3,423,000	15.0
1913 ...	2,296,000	484,000	437,000	3,217,000	16.5
1914 ...	2,332,000	499,000	406,000	3,237,000	17.0
1915 ...	2,157,000	519,000	378,000	3,054,000	19.0
1916 ...	1,919,000	500,000	344,000	2,763,000	27.0

As the River Plate bale is much larger than the Australasian or Cape bale, a comparison of the number of bales is somewhat misleading. Allowing approximately for the difference in size of the several bales, it may be said that during the last five years the importations from Australia and New Zealand represent about 65 per cent. of the total.

**9. United Kingdom Importation of Wool.**—The quantity and value of wool imported into the United Kingdom during the year 1916 from the principal wool-producing countries, furnish evidence of the important position which the Commonwealth occupies in the supply of wool to the mother country. This is shewn in the following table:—

## IMPORTS OF WOOL INTO THE UNITED KINGDOM, 1916.

Country from which Imported.	Quantity.	Value.	Country from which Imported.	Quantity.	Value.
	lbs.	£		lbs.	£
Australia ...	241,722,083	15,448,409	Spain ...	223,891	38,113
New Zealand ...	157,852,797	10,927,874	China ...	418,637	30,339
Union of Sth. Africa ...	90,071,988	4,632,338	U.S. of America ...	289,213	26,850
British India ...	64,793,105	2,556,794	Iceland & Greenland ...	345,089	23,608
Argentine Republic ...	31,782,139	2,060,499	Portugal ...	349,440	13,674
Chile ...	8,115,218	483,224	Morocco ...	13,300	668
France ...	3,808,053	283,171	Canada ...	8,432	640
Egypt ...	5,418,775	258,946	British Posses-		
Falkland Islands ...	4,352,042	235,768	sions, n.e.i. ...	704,958	41,597
Peru ...	2,734,506	176,952	Foreign Coun-		
Turkey, Asiatic ...	2,703,700	143,216	tries, n.e.i. ...	752,774	32,492
Persia ...	1,607,450	84,579			
Uruguay ...	879,094	60,263	Total ...	618,946,684	37,560,014

It will be seen that of the total importations of wool into the United Kingdom, Australian wool represented 39 per cent. of quantity and over 41 per cent. of value, and New Zealand over 25 per cent. of quantity and over 29 per cent. of value. It is interesting to note that a total of 564,924,180 lbs., valued at £34,102,366, was received from British Possessions, being a little over 91 per cent. of the total weight imported, and slightly under 91 per cent. of the total value.

10. **The Wool Market.**—(i.) *General.* A résumé of Australian wool market conditions for the seasons 1907-8 to 1912-13 will be found in Year Book No. 7 (pages 296 and 297), for the season 1913-14 in Year Book No. 8 (page 297), and for the seasons 1914-15 and 1915-16 in Year Book No. 10 (page 310).

(ii.) *Purchase by British Government.* The purchase by the Imperial Government of the balance of the Australian wool clip, for the season 1916-17, was brought about as a result of war conditions. Owing to the demand for wool for British and Allied military clothing, it was decided to acquire the Australian clip at the flat rate of 15½d. per pound greasy—an increase of 55 per cent. on the prices ruling in the pre-war season. The control of the scheme was placed in the hands of a body called the Central Wool Committee, assisted by a committee in each State. These committees consisted of representatives of the wool growers, wool sellers, wool buyers, manufacturers and scourers or fellmongers. In addition the Central Wool Committee had a Government nominee, who acted as chairman. The broad policy laid down was that existing trade conditions were not to be disturbed; this meant that the carrying out of the details of the scheme was left to the trade itself. The wool was prepared, catalogued and shewn in the usual way, but instead of being sold by public auction, it was valued by duly appointed Government Wool Appraisers, according to a table of limits prepared by a body of experts acting as an Advisory Board to the Central Wool Committee. On appraisal the wool became the property of the Imperial Government, and was shipped as freight space became available, it being prescribed that the allotment of freight should be on the basis of the quantity of wool appraised in each State.

The Central Wool Committee, at the request of the Imperial Government, undertook to scour and re-class as much wool as would keep the local industries going to their full capacity.

(iii.) *Financial.* Funds received from the Imperial Government, were used to effect a payment of 90 per cent. of the appraised price to wool brokers for distribution to the growers within fourteen days from the final date of each series of appraisements.



The balance of 10 per cent. was withheld for possible adjustments. The money so retained was placed at interest, the earnings being added to the amount available for final distribution.

The average appraised price per pound having worked out less than the purchase price of 15½d. per pound, the money retained, amounting to £2,313,461, was paid over on the 14th August, 1917. A dividend—the first—of 10 per cent. was paid on 23rd October, 1917, amounting to £2,312,608. This represents slightly more than the payment in full of the flat rate of 15½d. per pound. A small final dividend will follow as soon as circumstances will permit.

(iv.) *Quantity and Value of Wool Appraised, 1916-17.* The quantity of wool appraised under the Imperial Government's purchase of a portion of the clip for the season 1916-17 amounted to 323,748,376 lbs. greasy, and 34,310,645 lbs. scoured, or equivalent to 392,369,666 lbs. of wool in the grease. The actual quantities finally distributed between the British Government and Commonwealth manufacturers are set out in the table hereunder. The average appraised price per pound of wool in the grease was 14.72d., the average for scoured wool was 22.86d. per pound, and the average of all wool—greasy, and scoured calculated as greasy—appraised under the scheme was 14.15d. per pound. The difference of this average and the 15½d. basis being equal to 9.5 per cent. on the average appraised price, there is every probability of the total dividends approximating 10 per cent. of appraised prices. The quantities of wool shipped and the distribution thereof, also wool stored for shipment, are not available for publication.

The figures given in the following table are not final, as slight adjustments may eventually be necessary, though the result cannot be materially affected:—

#### PARTICULARS OF PURCHASE OF BALANCE OF 1916-17 AUSTRALIAN WOOL CLIP.

Purchased by	—	Quantity of Wool Appraised.				Values.	
		Bales.	Butts.	Bags.	lbs.	Appraised.	Based on
						£	Flat Rate.
British Government*	Greasy	940,872	8,171	110,274	309,789,055	18,985,169	20,007,210
	Scoured	141,247	153	823	33,188,552	3,170,381	4,286,854
	Total	1,082,119	8,324	111,097	342,977,607	22,155,550	†24,268,127
Woolen Manufacturers	Greasy	24,077	511	9,139	8,316,016	406,519	445,281
	Scoured	3,845	34	71	945,909	71,708	78,546
	Total	27,922	545	9,210	9,261,925	£ 478,227	523,827
Wool Top Manufacturers...	Greasy	17,427	...	...	5,643,305	473,635	518,797
	Scoured	820	...	...	176,184	27,197	29,790
	Total	18,247	...	...	5,819,489	500,832	†548,587
Total Purchased ...	Greasy	982,376	8,682	119,413	323,748,376	19,865,323	20,908,749
	Scoured	145,512	187	894	34,310,645	3,269,286	4,431,792
	Total	1,128,288	8,869	120,307	358,059,021	23,134,609	25,340,541
Grand total in terms of Greasy	...	...	...	...	†392,369,666	...	25,340,541

\* Actually purchased by British Government after meeting requirements of Commonwealth manufacturers. † After crediting £25,937 to the British Government for slightly higher grade wools selected by the Commonwealth manufacturers. ‡ On the assumption that two pounds of greasy are required to produce one pound of scoured, this total is made up by:—British Government, 376,166,159 lbs.; woolen manufacturers, 10,207,834 lbs., and wool top manufacturers, 5,995,673 lbs. of wool as in the grease. § Paid for by woolen manufacturers at appraised value. || Paid for at the flat rate basis of 15½d. per pound greasy, tops to be sold at prices fixed by Army Contracts' Wool Committee, London, a certain percentage of profits to be returned to the Commonwealth Government by wool tops manufacturers. || At flat rate of 15½d. per pound.

(v.) *Purchase of 1917-18 Clip.* The organisation for the carrying out of the Imperial Government's purchase of the Australian wool clip 1917-18, was the same as for the balance of the season 1916-17.

With the exception of a few modifications necessary for the better working of the scheme, no alteration was made in the method of appraisement.

Ninety per cent. of the appraised value was paid to wool growers through the wool-selling brokers fourteen days after the completion of each series of appraisements, ten per cent. again being withheld for possible adjustments.

The total quantity of greasy wool appraised was 569,629,520 lbs., and scoured wool 47,340,403 lbs., a total of 616,969,923 lbs., equal to 664,310,326 lbs. greasy.

The average appraised price of the greasy wool is 14.98d. per lb., and of the scoured wool 25.62d. per lb.. The average appraised price on the greasy basis works out at 14.68d. per lb. The difference between this and the flat rate of 15½d. is equal to 5.59 per cent. of the appraised price.

The ten per cent. retention money, together with a dividend of five per cent., was distributed in all centres on the 21st August, 1918, involving a sum of approximately £6,094,713.

#### PARTICULARS OF PURCHASE OF 1917-18 AUSTRALIAN WOOL CLIP.

Purchased by	—	Quantity of Wool Appraised.				Values.					
		Bales.	Fadges.	Sacks.	Weight in lbs.	Appraised Value.		Based on Flat Rate Value.			
						£	s. d.	£	s. d.	£	s. d.
British Government	Greasy	1,627,360	18,136	190,587	553,713,279	34,619,564	19 9	36,555,476	4 11		
	Scoured	197,246	697	745	46,196,661	4,956,855	0 7	5,234,040	4 10		
	Total	1,824,606	18,833	191,332	599,909,940	39,576,420	0 4	41,789,516	9 9		
Woollen Manufacturers ...	Greasy	37,187	493	15,682	13,185,745	715,302	10 3	755,301	18 6		
	Scoured	4,632	16	23	1,132,587	95,444	17 0	100,782	1 8		
	Total	41,819	509	15,705	14,318,332	810,747	7 3	856,084	0 2		
Wool Top Manufacturers ...	Greasy	7,936	1	...	2,730,496	242,287	10 4	255,836	2 9		
	Scoured	46	...	...	11,155	1,835	18 7	1,938	11 9		
	Total	7,982	1	...	2,741,651	244,123	8 11	257,774	14 6		
Total Purchased ...	Greasy	1,672,483	18,630	206,269	569,629,520	35,577,155	0 4	37,566,614	6 2		
	Scoured	201,924	713	768	47,340,403	5,054,135	16 2	5,336,760	18 3		
	Total	1,874,407	19,343	207,037	616,969,923	40,631,290	16 6	42,903,375	4 5		
Grand total in terms of Greasy ...	...	...	...	...	664,310,326	...		42,903,375	4 5		

NOTE:—Woollen Manufacturers obtain their supplies at the appraised price, but Wool Top Manufacturers are required to pay the flat rate value for all their purchases.

Arrangements have now been concluded for the purchase by the Imperial Government of the Australian wool clip for the currency of the war, and for one full wool year thereafter.

(vi.) *Average Export Value.* The average values per lb. of Australian greasy wool according to the export returns for the past ten years have been as follows:—

#### EXPORT VALUE PER LB. OF AUSTRALIAN GREASY WOOL, 1907 to 1916-17.

Year ...	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914-15.	1915-16.	1916-17.
Average value per lb. ...	d. 10.73	d. 9.17	d. 9.35	d. 9.58	d. 8.87	d. 9.50	d. 9.70	d. 9.45	d. 11.86	d. 15.81

(vii.) *Exports of Wool from each State, and Quantity sold Locally.* Over 89 per cent. of the wool grown in Australia was sold in the local markets prior to export from the Commonwealth during 1915-16. Under normal conditions prior to the war buyers from the United Kingdom, France, Germany, and other European countries, also from America, Japan, China, and India, attended the sales conducted in Sydney, Melbourne, Geelong, Brisbane, Adelaide, Fremantle, Hobart, and Launceston.

The following table shews the number of bales of wool exported overseas from each State during the season ended 30th June, 1917, and bales appraised or sold for shipment, for use in local woollen mills and for scouring, etc. It must be noted that as considerable quantities of wool grown in some States are sold in or shipped from others, these figures therefore do not shew actual local production, but total overseas shipments and sales. The estimated quantity of wool produced in each State is given on page 323.

**EXPORTS OF WOOL TO PLACES OUTSIDE THE COMMONWEALTH, AND THE QUANTITY APPRAISED OR SOLD IN THE SEVERAL STATES, DURING THE SEASON ENDED 30th JUNE, 1917.**

State.	Oversea Exports.		Sales or Appraisements.	
	Bales.	%	Bales.	%
New South Wales ... ..	590,372	46.74	707,254	42.34
Victoria ... ..	277,394	21.96	467,034	27.96
Queensland ... ..	220,437	17.45	275,141	16.47
South Australia ... ..	100,052	7.92	136,513	8.17
Western Australia ... ..	58,256	4.61	51,350	3.08
Tasmania ... ..	16,625	1.32	32,989	1.98
Commonwealth ... ..	1,263,136	100.00	1,670,281	100.00

(viii.) *Exports of Wool from Commonwealth and Quantity sold Locally.* The number of bales of wool exported from the Commonwealth and sold at local sales prior to shipment, or taken for local use, during 1895, 1900, 1905, 1910, and the past seven seasons is shewn in the following table:—

**EXPORTS OF WOOL FROM THE COMMONWEALTH, AND THE QUANTITY SOLD LOCALLY FROM 1895 to 1917.**

Year ended 30th June.		Oversea Exports.	Local Sales.*	Ratio of Wool sold locally to Exports.
		Bales.	Bales.	%
1895 ... ..		1,595,652	817,333	51.22
1900 ... ..		1,221,163	807,031	66.09
1905 ... ..		1,218,969	926,940	76.04
1910 ... ..		1,921,705	1,624,561	84.54
1911 ... ..		1,975,378	1,642,555	83.15
1912 ... ..		2,020,547	1,700,494	84.16
1913 ... ..		1,718,486	1,518,650	88.37
1914 ... ..		1,966,576	1,703,744	86.64
1915 ... ..		1,575,688	1,222,872	77.61
1916 ... ..		1,619,259	1,443,118	89.12
1917 ... ..		1,263,136	1,670,281	...

\* Including wool absorbed by Local Woollen Mills, and Wool Scouring establishments.

The steady development of the Australian wool market is clearly shewn in this table. In the nineteen years ended 1914, the quantity sold locally more than doubled, and the ratio of wool sold locally to that exported increased from 51 per cent. in 1895 to over 86½

per cent. in the season ended 30th June, 1914. The abnormal conditions obtaining since the outbreak of war have materially affected the ratios, which in consequence are no longer serviceable as a measure of growth of the local market.

During the past season 1,670,281 bales of wool were sold in Australia, and 546,300 bales in New Zealand, representing a total value of £45,631,102. This enormous quantity far exceeds the sales of any other wool producing country in the world.

(ix.) *Quantities of Various Descriptions of Wool Sold or Appraised in each State.* The quantities and ratios of the various descriptions of wool marketed in each State are shewn in the following tables:—

**PROPORTIONS OF THE VARIOUS DESCRIPTIONS OF WOOL SOLD OR APPRAISED LOCALLY IN THE SEVERAL STATES OF THE COMMONWEALTH DURING THE SEASON ENDED 30th JUNE, 1917.**

Description of Wool.	N. S. W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Commonwealth.
	Bales.	Bales.	Bales.	Bales.	Bales.	Bales.	Bales.
Greasy ...	630,703	438,231	196,268	129,007	50,878	32,931	1,478,018
Scoured ...	76,551	28,808	78,873	7,506	472	58	192,263
Total	707,254	467,034	275,141	136,513	51,350	32,989	1,670,281
Fleece, etc.	664,819	418,090	263,520	123,698	41,167	31,305	1,542,599
Lambs ...	42,435	48,944	11,621	12,815	10,183	1,684	127,682
Total	707,254	467,034	275,141	136,513	51,350	32,989	1,670,281
Merino ...	579,948	222,449	268,261	124,890	43,529	11,254	1,250,331
Crossbred and all strong breeds	127,306	244,585	6,880	11,623	7,821	21,735	419,950
Total	707,254	467,034	275,141	136,513	51,350	32,989	1,670,281
	%	%	%	%	%	%	%
Greasy ...	89.18	93.83	71.33	94.50	99.08	99.82	88.49
Scoured ...	10.82	6.17	28.67	5.50	0.92	0.18	11.51
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Fleece, etc.	94.00	89.52	95.78	90.61	80.17	94.90	92.36
Lambs ...	6.00	10.48	4.22	9.39	19.83	5.10	7.64
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Merino ...	82.00	47.63	97.50	91.49	84.77	34.11	74.86
Crossbred and all strong breeds	18.00	52.37	2.50	8.51	15.23	65.89	25.14
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Wool in the grease represented 88½ per cent. of the total marketed during the period under review. Of fleece and lambs wool, the former represents 92.36, and the latter 7.64

per cent. The class of wool produced is principally merino, which is almost exclusively grown in the northern and central parts of the continent, the bulk of the merino wool dealt with in Victoria coming from Riverina and other parts of New South Wales. Victoria, the southern parts of South Australia and of New South Wales, and Tasmania, produce nearly the whole of the crossbred and other strong bred wools.

(x.) *Percentages in each State of Various Descriptions of Wool Sold or Appraised.* The following table gives the percentages of each description of wool sold or appraised in the several States during the season 1916-17 :—

**PERCENTAGE OF BALES OF EACH DESCRIPTION OF WOOL SOLD OR APPRAISED IN THE SEVERAL STATES TO THE TOTAL SOLD OR APPRAISED IN THE COMMONWEALTH, 1916-17.**

Description of Wool.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Commonwealth.
	%	%	%	%	%	%	%
Greasy ...	42.67	29.65	13.28	8.73	3.44	2.23	100.00
Scoured ...	39.82	14.98	41.02	3.90	0.25	0.03	100.00
Fleece, etc. ...	43.10	27.10	17.08	8.02	2.67	2.03	100.00
Lambs ...	33.23	38.33	9.10	10.04	7.98	1.32	100.00
Merino ...	46.38	17.79	21.46	9.99	3.48	0.90	100.00
Crossbred and all strong breeds ...	30.31	58.24	1.64	2.77	1.86	5.18	100.00

## § 6. Hides and Sheepskins.

1. **Extent of Trade.**—In addition to the hides and sheepskins treated in the tanneries of the several States, a very considerable export trade is carried on, the total value of the hides and sheepskins exported from Australia during the five years 1912 to 1916-17 being no less than £13,635,549, or an average of £2,727,110 per annum.

2. **Sheepskins with Wool.**—By far the largest item included in the amount mentioned in the preceding paragraph arises from the value of sheepskins with wool exported, which are shipped principally to the United Kingdom and France. Details concerning the number so exported during the five years 1912 to 1916-17 are as follow :—

**COMMONWEALTH EXPORT OF SHEEPSKINS WITH WOOL, 1912 to 1916-17.**

Country to which Exported.	1912.	1913.	1914-15.	1915-16.	1916-17.	Total for 5 Years.
	No	No.	No.	No.	No.	No
United Kingdom	3,707,050	3,861,161	5,844,442	3,506,365	2,152,016	19,071,034.
France ...	5,297,141	5,932,257	2,227,714	1,863,904	753,530	16,074,546.
Belgium ...	1,277,530	996,821	29,366	...	...	2,303,717
U.S. of America...	129,899	59,037	1,016,958	331,706	...	1,577,600.
Canada...	679	...	206,876	61,103	46,668	315,326.
Germany ...	63,112	57,735	2,578	...	...	123,425
New Zealand ...	661	...	39,083	25,283	...	65,027
Italy ...	...	960	...	9,949	...	10,909
Other Countries ...	...	261	1,051	24	...	1,336.
Total ...	10,476,072	10,948,232	9,368,068	5,798,334	2,952,214	39,542,920.

The next table furnishes corresponding particulars as to value :—

**VALUE OF SHEEPSKINS WITH WOOL EXPORTED FROM THE COMMONWEALTH,  
1912 to 1916-17.**

Country to which Exported.	1912.	1913.	1914-15.	1915-16.	1916-17.	Total for 5 Years.
	£	£	£	£	£	£
United Kingdom	666,962	804,432	1,021,432	779,615	738,483	4,010,924
France ...	980,298	1,315,156	387,692	283,293	250,783	3,217,222
Belgium ...	314,301	335,569	10,877	...	...	660,747
U.S. of America...	12,713	15,127	213,249	97,890	...	338,979
Canada...	66	...	46,374	12,553	10,869	69,862
Germany ...	10,576	11,620	812	...	...	23,008
New Zealand ...	113	...	9,748	6,268	...	16,129
Italy ...	...	100	...	875	...	975
Other Countries ...	...	55	468	5	...	528
<b>Total ...</b>	<b>1,985,029</b>	<b>2,482,059</b>	<b>1,690,652</b>	<b>1,180,499</b>	<b>1,000,135</b>	<b>8,338,374</b>

3. **Sheepskins without Wool.**—In the case of sheepskins without wool the principal countries to which export takes place are the United States of America and the United Kingdom. Particulars concerning the quantities exported are as follows :—

**COMMONWEALTH EXPORTS OF SHEEPSKINS WITHOUT WOOL, 1912 to 1916-17.**

Country to which Exported.	1912.	1913.	1914-15.	1915-16.	1916-17.	Total for 5 Years.
	No.	No.	No.	No.	No.	No.
United States of America	271,028	21,760	640,302	1,815,725	1,618,517	4,367,332
United Kingdom ...	131,103	128,578	720,417	103,497	155,189	1,238,784
France ...	55,845	5,364	...	...	1,098	62,307
New Zealand ...	1,515	...	12	...	24	1,551
Canada ...	...	...	3,096	540	184,460	188,096
Japan ...	...	...	...	1,047	2,949	3,996
Belgium ...	167	...	...	...	...	167
<b>Total ...</b>	<b>459,658</b>	<b>155,702</b>	<b>1,363,827</b>	<b>1,920,809</b>	<b>1,962,237</b>	<b>5,862,233</b>

Corresponding details concerning value are given hereunder :—

**VALUE OF SHEEPSKINS WITHOUT WOOL EXPORTED FROM THE COMMONWEALTH,  
1912 to 1916-17.**

Country to which Exported.	1912.	1913.	1914-15.	1915-16.	1916-17.	Total for 5 Years.
	£	£	£	£	£	£
United States of America	8,730	1,550	35,766	86,908	126,612	259,566
United Kingdom ...	3,854	5,130	37,875	5,243	12,019	64,121
France ...	5,948	382	...	...	89	6,419
New Zealand ...	27	...	2	...	2	31
Canada ...	...	...	233	39	13,750	14,022
Japan ...	...	...	...	83	337	420
Belgium ...	4	...	...	...	...	4
<b>Total ...</b>	<b>18,563</b>	<b>7,062</b>	<b>73,876</b>	<b>92,273</b>	<b>152,809</b>	<b>344,583</b>

4. **Hides.**—The Commonwealth trade in hides has now assumed considerable proportions, and during 1913 the total value of hides exported amounted to £1,657,971. The exports were principally to the United Kingdom, the United States of America, Belgium and Germany. The disastrous drought of 1914-15 greatly reduced the quantity of hides in the succeeding years. This, in conjunction with the increased demand for leather, more especially for military purposes, resulted in a considerable falling-off in the quantity of hides available for export. To insure against a shortage of supplies for home consumption, on the 28th October, 1914, the Government by proclamation prohibited the exportation of hides unless the consent in writing of the Minister for Trade and Customs was first obtained. The embargo when enforced was in the case of heavy hides only. Large quantities of hides are imported into the Commonwealth, mainly from New Zealand and the Pacific Islands. The total value of hides imported during 1916-17 was £161,380.

Particulars concerning the export of hides during the past five years are as follows:—

**COMMONWEALTH EXPORT OF HIDES.\* 1912 to 1916-17.**

Country to which Exported.	1912.	1913.	1914-15.	1915-16.	1916-17.	Total for 5 Years.
	No.	No.	No.	No.	No.	No.
United Kingdom	350,519	360,549	485,500	237,707	147,540	1,581,815
U.S. of America	82,808	136,687	371,364	...	2,783	593,642
Canada ...	65,407	11,205	264,785	208,355	25,210	574,962
Belgium ...	108,455	244,394	40,211	...	...	393,060
Italy ...	117,352	85,984	9,830	131,894	2,334	347,394
Germany ...	78,059	206,588	18,773	...	...	303,420
France ...	15,151	16,208	8,873	1,129	3,733	45,094
Japan ...	5,025	155	6,863	4,063	...	16,106
Austria-Hungary	1,275	3,631	203	...	...	5,109
Union of S. Africa	...	...	480	2,705	...	3,185
Other Countries ...	9,717	7,674	11,600	15,288	11,619	55,898
Total ...	833,768	1,073,075	1,218,482	601,141	193,219	3,919,685

\* Including calf and horse hides.

In the next table are given particulars relative to the value of hides exported:—

**VALUE OF HIDES\* EXPORTED FROM THE COMMONWEALTH, 1912 to 1916-17.**

Country to which Exported.	1912.	1913.	1914-15.	1915-16.	1916-17.	Total for 5 Years.
	£	£	£	£	£	£
United Kingdom	430,609	580,195	670,421	271,364	270,848	2,223,437
U.S. of America...	94,783	196,583	375,270	...	5,217	671,853
Belgium ...	139,188	385,627	52,647	...	35,043	612,505
Germany ...	103,081	339,605	30,259	...	...	472,945
Canada ...	74,273	16,622	198,421	130,157	3,772	423,245
Italy ...	125,744	102,834	12,299	128,906	...	369,783
France ...	19,865	20,078	13,933	1,780	7,152	62,808
Japan ...	8,378	335	13,063	8,524	...	30,300
Austria-Hungary	1,757	5,545	355	...	...	7,657
Union of S. Africa	...	...	531	3,038	...	3,569
Other Countries ...	9,576	10,547	13,687	16,446	24,234	74,490
Total ...	1,007,254	1,657,971	1,380,886	560,215	346,266	4,952,592

\* Including calf and horse hides.

The number and value of hides imported into the Commonwealth during the five years 1912 to 1916-17 are as follows:—

**HIDES IMPORTED INTO THE COMMONWEALTH, 1912 to 1916-17.**

Particulars.		1912.	1913.	1914-15.	1915-16.	1916-17.	Total for 5 Years.
No. ...	...	87,680	135,193	83,999	147,450	94,065	548,387
Value ...	£	135,301	239,780	146,015	293,541	161,380	976,017

**§ 7. Graphical Representation of Pastoral Production.**

1. **General.**—As comparatively complete statistics relative to the number of horses, cattle, sheep and pigs are available from 1860, the graphical representation of the fluctuations in numbers for the Commonwealth as a whole, shewn on page 321, covers the period from 1860 to 1916.

2. **Horses.**—With relatively unimportant fluctuations the number of horses in the Commonwealth increased at a fairly consistent rate until 1895, when a decline set in, culminating in the losses of the drought of 1902. At this latter point the number was practically identical with that for 1890. From 1902 onwards a rapid improvement was experienced, the totals for 1913 and 1914 being the highest recorded. The disastrous drought of 1914-15 was responsible for heavy losses, the number recorded at the close of the latter year being considerably less than in 1912. The 1916 figures, however, shewed a substantial increase, the returns being somewhat below those for 1913, but above those for 1912.

3. **Cattle.**—The graph for cattle furnishes evidence of rapid increase in number, interrupted by four marked periods of decline, of which the first extended from 1862 to 1866, the second from 1881 to 1885, the third from 1894 to 1902. So extensive was this last-mentioned decline that the number receded to that of 1879. From 1902 a rapid recovery took place, and the total for 1911 exceeded that existing at the end of the year 1895, though still short of the maximum attained in 1894. The fourth period of decline commenced in 1912, the figures from that year to 1914 shewing a slight decline, while those for 1915 shew a very serious falling-off, the difference between the 1911 and 1915 returns amounting to over 16 per cent. In 1916 the number of cattle commenced to ascend, an increase exceeding 500,000 being in evidence over the number for the previous year.

4. **Sheep.**—In the case of sheep the graph furnishes evidence of six periods in which the upward movement in number has been arrested or reversed. The first of these occurred between 1868 and 1871, the second between 1875 and 1877, the third during 1884, the fourth, by far the most serious, between 1891 and 1902, the fifth during 1912, and the sixth during 1914-15. From 1902 to 1907 a rapid increase took place, succeeded by a slight decline in 1908, and a rapid advance in 1909, 1910 and 1911, the point reached in the latter year being the highest since 1894. The return for 1912 shews a considerable decrease; this was followed by an increase in 1913, but there was a heavy falling-off in 1914, amounting to  $7\frac{1}{2}$  per cent., and a still heavier one in 1915, amounting to over  $11\frac{1}{2}$  per cent., the total number of sheep in the latter year being the lowest since 1904. As in the case of all other live stock there was a very substantial increase in the number of sheep during 1916, an increase of nearly 11 per cent. having taken place.

5. **Pigs.**—The graph for pigs exhibits more numerous fluctuations than that for any of the other classes of live stock represented, and from 1904 to 1908 furnished evidence of a persistent decline. In 1909, however, an upward movement took place; and this was well maintained during the two succeeding years, the 1911 returns exceeding all previous records. There was a considerable decrease in 1912, and a smaller one during 1913. The 1914 returns, however, shew an upward tendency, followed by a sharp decline during 1915, and an even sharper increase in 1916.



## SECTION VIII.

## AGRICULTURAL PRODUCTION.

NOTE.—Except where otherwise stated, the "agricultural" years hereinafter mentioned are taken as ending on the 31st March.

## § 1. Introductory.

1. **Early Attempts at Agriculture.**—The instructions issued to Captain Phillip on the 25th April, 1787, directed him, amongst other things, to proceed as soon as possible to the cultivation of the soil "under such regulations as may appear to be necessary and best calculated for securing supplies of grain and provisions." When the settlers landed at Botany Bay, however, it was found that the glowing accounts published in England by members of Captain Cook's expedition of the fertility of the soil in that locality were considerably overdrawn. Even when Phillip and his company moved round to Port Jackson on the 26th January, 1788, matters were for a time in no better case. The ground in the immediate neighbourhood of the settlement was not suitable for the cultivation of cereal crops, and when the time came to cultivate the soil it was found that there were very few who possessed the slightest acquaintance with the art of husbandry.

2. **The First Sowing.**—In his despatch of the 15th May, 1788, Captain Phillip states that it was proposed to sow eight acres with wheat and barley, although, owing to the depredations of field mice and ants, he was doubtful of the success of the crops.

3. **Discovery of Suitable Agricultural Land.**—A branch settlement was formed at Rosehill, on the Parramatta River, towards the close of 1788, and here grain crops were successfully raised. In his despatch of 12th February, 1790, Phillip refers to the harvest at Rosehill at the end of December, 1789, as consisting of 200 bushels of wheat and 60 of barley, in addition to small quantities of oats, Indian corn, and flax. By the year 1791 there were 213 acres under crop in this locality. In 1792 a new settlement was formed at Toongabbie, about three miles westward of Parramatta, where Phillip states "there are several thousand acres of exceeding good ground." The Hawkesbury Valley, which probably contains some of the richest land in the world, was first settled in 1794. For a long time agricultural operations in Australia were restricted to the narrow belt of country between the tableland and the east coast of New South Wales, as it was not until the year 1813 that a passage was discovered across the Blue Mountains to the fertile plains of the west.

## § 2. Progress of Agriculture.

1. **Early Records.**—In an "Account of Live Stock and Ground under Crop in New South Wales, 19th August, 1797," Governor Hunter gives the acreage under crop as follows:—Wheat, 3361 acres; maize, 1527 acres; barley, 26 acres; potatoes, 11 acres; and vines, 8 acres.

At a muster taken in 1808 the following was the return of crops:—Wheat, 6877 acres; maize, 3389 acres; barley, 544 acres; oats, 92 acres; peas and beans, 100 acres; potatoes, 301 acres; turnips, 13 acres; orchards, 546 acres; and flax and hemp, 34 acres.

By the year 1850 the area under crop had increased to 491,000 acres, of which 198,000 acres were cultivated in what is now the State of New South Wales, and 169,000 acres in Tasmania. At the end of 1850 the area under cultivation in Victoria, which was then the Port Phillip District of New South Wales, was 52,190 acres.

The gold discoveries of 1851 and subsequent years had at first a very disturbing effect on agricultural progress, the area under crop declining from 491,000 acres in 1850 to 458,000 acres in 1854; the area under cultivation in New South Wales decreased by nearly 66,000 acres, while in Tasmania a falling-off of over 41,000 acres was experienced. The demand for agricultural products occasioned by the large influx of population was, however, soon reflected in the increased area cultivated, for at the end of 1858 the land under crop in Australia totalled over a million acres. The largest increase took place in Victoria, which returned an area of 299,000 acres. For the same year South Australia had 264,000 acres in cultivation, Tasmania 229,000 acres, and New South Wales 223,000 acres.

**2. Progress of Cultivation since 1860.**—The following table shows the area under crop in each of the Commonwealth States and Territories at quinquennial intervals since 1860 and during each of the last seven seasons. The area under permanent artificially-sown grasses is excluded in all the States, except for the years 1860-79 in the case of New South Wales, where the acreage cannot be separated. During those years, however, the area laid down under permanent grasses could not have been very large:—

AREA UNDER CROP IN AUSTRALIA, 1860 to 1916-17.

Season.	New South Wales.	Victoria.	Queens- land.	South Australia.	W. Aust.	Tas- mania.	N.T.	Fed. Terr.	Common- wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1860-1	260,798	387,282	3,353	359,284	24,705	152,860	...	...	1,188,282
1865-6	378,255	448,194	14,414	547,124	38,180	159,547	...	...	1,585,714
1870-1	426,976	692,840	52,210	801,571	54,527	157,410	...	...	2,185,534
1875-6	451,139	736,520	77,347	1,111,882	47,571	142,547	...	...	2,567,006
1880-1	629,180	1,548,809	113,978	2,087,237	57,707	140,788	...	...	4,577,699
1885-6	737,701	1,867,496	193,334	2,298,412	60,058	144,761	...	...	5,306,762
1890-1	852,704	2,031,955	224,993	2,093,515	69,678	157,376	...	...	5,430,221
1895-6	1,348,600	2,413,235	285,319	2,092,942	97,821	212,703	...	...	6,450,620
1900-1	2,445,564	3,114,132	457,397	2,369,680	201,338	224,352	...	...	8,812,463
1905-6	2,840,235	3,219,962	522,748	2,255,569	364,704	230,237	...	...	9,433,455
1910-11	3,386,017	3,952,070	667,113	2,746,334	855,024	286,920	360	...	11,893,838
1911-12	3,628,513	3,640,241	526,388	2,965,338	1,072,653	270,000	375	3,509	12,107,017
1912-13	3,737,085	4,079,356	668,483	3,062,998	1,199,991	286,065	330	3,741	13,038,049
1913-14	4,567,592	4,391,321	747,814	3,169,559	1,537,923	264,140	354	4,309	14,683,012
1914-15	4,807,001	4,622,759	792,568	3,232,364	1,867,547	274,474	391	4,870	15,651,974
1915-16	5,796,376	5,711,265	729,588	3,763,570	2,189,456	333,334	274	4,371	18,528,234
1916-17	5,164,434	4,851,335	885,259	3,627,477	2,004,944	270,526	274	2,131	16,806,380

The increase in the area under crop during the past ten years has been most marked in the case of New South Wales, Victoria and Western Australia, the respective increases being 2,337,777, 1,547,749, and 1,544,119 acres. During the same period an increase of 1,470,242 acres was experienced in South Australia, 325,506 in Queensland, and 25,782 acres in Tasmania. The total area under crop in the Commonwealth increased during the period by 7,253,580 acres, and the total for 1915-16 was the highest ever attained by the Commonwealth. During these past ten seasons the percentage of increase was particularly high in Western Australia, viz., 335 per cent. New South Wales had an increase of 83 per cent., while South Australia, Queensland, Victoria, and Tasmania added to their areas under crop to the extent of 68, 58, 47 and 11½ per cent. respectively. The increase for the whole of the Commonwealth during the same period was 75.9 per cent.

**3. Relation to Population.**—From the following table it will be seen that for the Commonwealth as a whole the area under crop has, during the seasons under review, with the exception of 1916-17, increased at a rate which is greater than that at which

the population of the Commonwealth has increased. This relatively greater increase is in evidence in all the States, being most marked in the case of Western Australia, which has now a larger area under crop per head of population than any State except South Australia. Details for 1901-2 and for the past five seasons are as follows:—

**TOTAL AREA UNDER CROP PER 1000 OF POPULATION, 1901-2 and 1912-13  
to 1916-17.**

Season	N S.W.	Vic.	Q'land	S. Aust.	W. Aus.	Tas.	Northern Territory	Federal Terr.	C'with.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1901-2	1,656	2,451	954	6,224	1,123	1,327	...	...	2,200
1912-13	2,102	2,955	1,050	7,122	3,920	1,451	95	1,928	2,755
1913-14	2,494	3,110	1,133	7,203	4,796	1,310	96	2,168	3,014
1914-15	2,582	3,231	1,171	7,431	5,782	1,363	98	2,486	3,168
1915-16	3,099	4,025	1,075	8,584	6,885	1,658	60	2,390	3,757
1916-17	2,779	3,468	1,322	8,383	6,493	1,353	57	959	3,447

4. **Relation to Total Area.**—The next table furnishes a comparison of the area under crop in the Commonwealth and the several States and Territories, with the respective total areas. For the Commonwealth as a whole, the area under crop in 1916-17 represented only about one acre in every 113. In Victoria the proportion was about one acre in every 11½, in New South Wales one in 38, in Tasmania one in 62, in South Australia one in 67, in Western Australia one in 311, in Queensland one in 485, in the Federal Territory one in 282, and in the Northern Territory one in 1,223,054.

**PERCENTAGE OF AREA UNDER CROP TO TOTAL AREA, 1901-2 and 1912-13 to 1916-17.**

Season.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aus.	Tas.	Northern Territory	Federal Terr.	C'with.
	%	%	%	%	%	%	%	%	%
1901-2	1.147	5.273	0.113	0.919	0.035	1.386	...	...	0.442
1912-13	1.887	7.253	0.156	1.259	0.192	1.705	0.0001	0.641	0.685
1913-14	2.230	7.807	0.174	1.303	0.246	1.574	0.0001	0.738	0.771
1914-15	2.427	8.219	0.185	1.349	0.299	1.636	0.0001	0.834	0.822
1915-16	2.927	10.154	0.170	1.547	0.351	1.987	0.0001	0.749	0.973
1916-17	2.608	8.625	0.206	1.491	0.321	1.612	0.0001	0.354	0.883

5. **Artificially-Sown Grasses.**—In all the States considerable areas are devoted to artificially-sown grasses, mainly sown on uncultivated land after burning off the existing vegetation and consequently not included with "area under crops." Statistics regarding the area under such grasses are as shewn hereunder:—

**AREA UNDER SOWN GRASSES, 1901-2 and 1912-13 to 1916-17.**

Season.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Fed. Terr.	Commonwealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1901-2	467,839	162,954	34,679	23,510	3,711	314,422	...	1,007,115
1912-13	1,152,399	1,085,346	205,363	30,377	5,168	508,714	50	* 2,987,419
1913-14	1,234,405	1,094,566	236,582	30,277	6,919	605,559	50	* 3,208,362
1914-15	1,278,883	1,202,130	290,147	24,974	8,025	647,602	70	* 3,451,831
1915-16	1,247,029	1,182,995	305,186	25,443	9,119	675,335	70	* 3,445,377
1916-17	1,357,087	1,292,817	363,876	29,644	8,327	654,072	70	* 3,706,093

\* Including 2 acres Northern Territory 1912-13, 4 acres 1913-14, and 200 acres 1915-16 and 1916-17.

The considerable increase in the area of the grass lands of the Commonwealth is due in large measure to the great development of the dairying industry which has taken place during recent years, and which is referred to in the succeeding section.

### § 3. Relative Importance of Crops.

1. **Various Crops.**—In the following table are furnished details concerning the areas in the several States under each of the principal crops for the season 1916-17 :—

#### DISTRIBUTION OF CROPS IN AUSTRALIA, 1916-17.

Crop.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N.T. 1915-16.	Fed. Terr.	Total for C'wth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Wheat ... ..	3,805,699	3,125,692	227,778	2,778,357	1,566,608	27,789	...	905	11,532,828
Oats ... ..	67,003	441,598	6,564	151,609	122,220	55,028	...	108	844,130
Maize ... ..	155,373	23,076	181,405	117	51	...	45	5	360,072
Barley—									
Malting ... ..	2,874	43,131	8,578	77,984	5,157	4,122	...	...	141,846
Other ... ..	2,321	49,884	4,096	25,643	5,948	515	...	...	88,407
Beans and Peas	357	9,956	49	5,875	496	15,660	...	...	32,393
Rye ... ..	2,341	3,481	131	1,868	520	714	...	...	9,055
Other Cereals ...	...	...	...	...	80	...	25	...	105
Hay ... ..	857,533	897,186	112,964	489,040	240,726	79,274	140	999	2,671,862
Green Forage ...	149,824	49,667	117,174	37,352	28,653	8,133	24	49	390,876
Grass Seed ...	760	1,769	1,588	10	...	1,155	...	...	4,582
Orchards & other									
Fruit Gardens	60,360	83,087	25,293	28,794	21,747	88,380	...	26	257,687
Vines—									
Productive ...	6,176	18,604	1,123	24,376	2,494	...	...	...	52,773
Unproductive	2,490	4,660	133	4,801	537	...	...	...	12,621
Market Gardens	10,683	10,746	2,305	1,522	2,153	448	...	27	27,884
Sugar Cane—									
Productive ...	5,223	...	75,914	...	...	...	...	...	81,137
Unproductive	5,746	...	91,307	...	...	...	...	...	97,053
Potatoes ... ..	22,437	73,618	8,908	4,737	5,838	34,345	...	12	149,895
Onions ... ..	180	6,324	189	288	57	21	...	...	7,059
Other root crops	869	2,704	2,417	274	292	2,988	15	...	9,559
Tobacco ... ..	952	73	317	...	...	...	...	...	1,342
Broom Millet ...	1,720	1,143	1,063	...	...	...	5	...	3,931
Pumpkins and									
Melons ... ..	3,119	2,064	12,566	345	659	...	20	...	18,773
Hops ... ..	...	87	...	3	...	1,241	...	...	1,331
All other crops	1,094	2,785	3,397	482	708	713	...	...	9,179
Total Area...	5,164,434	4,851,335	885,259	3,627,477	2,004,944	270,526	274	2,131	16,896,380

\* Canary Seed only, balance included with acreage under green forage and hay.

2. **Relative Areas of Crops in States and Territories.**—Taking the principal crops, *i.e.*, those in the case of which the cultivation amounts to more than 50,000 acres in the Commonwealth, the proportion of each in the various States and Territories to the total area under crop for the season 1916-17 is shewn in the next table. In five of the States, *viz.*, New South Wales, Victoria, Queensland, South Australia, and Western Australia, wheat-growing for grain is by far the most extensive form of cultivation, while in the same States, with the exception of Queensland the hay crop is second in importance. In Victoria, South Australia, and Western Australia the oat crop occupies third position. In Queensland, on the other hand, the three principal crops in the order of importance are wheat, maize, and sugar cane, while in Tasmania hay, oats, orchards and fruit gardens occupy the leading positions. For the Commonwealth as a whole, the wheat, hay, and oat crops represent over 89½ per cent. of the total area under crop.

## PROPORTION OF AREA UNDER CHIEF CROPS, 1916-17.

Crop.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N.T.	Federal Terr.	C'wealth
	%	%	%	%	%	%	%	%	%
Wheat ...	73.69	64.43	25.73	76.59	78.14	10.27	...	42.47	68.62
Hay ...	16.60	18.49	12.76	13.32	12.01	29.30	51.10	46.88	15.90
Oats ...	1.30	9.10	0.74	4.18	6.10	20.34	...	5.07	5.02
Green Forage	2.90	1.02	13.24	1.03	1.43	3.01	8.76	2.30	2.33
Maize ...	3.01	0.48	20.49	...	...	...	16.42	0.23	2.14
Orchards and Fruit G'dens	1.17	1.71	2.86	0.79	1.08	14.19	...	1.22	1.53
Barley ...	0.10	1.94	1.43	2.86	0.55	1.71	...	...	1.37
Sugar Cane...	0.21	...	18.89	...	...	...	...	...	1.06
Potatoes ...	0.43	1.52	1.01	0.13	0.29	12.70	1.82	0.56	0.89
Vineyards ...	0.17	0.48	0.14	0.80	0.15	...	...	...	0.39
All Other ...	0.42	0.82	2.71	0.30	0.25	8.48	21.90	1.27	0.75
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

## 3. Relative Positions of States and Territories in regard to Principal Crops.—

The relative proportion of acreage of the several crops and the position regarding them in each State and Territory is shewn in the following table. New South Wales exhibits the largest area under wheat and green forage; Victoria is in the leading position in regard to hay, oats, orchards and fruit gardens, and potatoes; and Queensland is first in sugar cane and maize and second in green forage. South Australia had the largest area under vineyards and barley, and occupied second position in regard to oats; Western Australia held third position in oats and fourth in wheat, hay, barley, and vineyards; while Tasmania was second in regard to potatoes, and third in orchards and fruit gardens.

## RELATIVE POSITIONS OF STATES AND TERRITORIES IN REGARD TO AREA UNDER EACH OF THE PRINCIPAL CROPS DURING THE SEASON 1916-17.

Crop.	N.S.W.	Vict.	Q'land.	S. Aust.	W.A.	Tas.	N.T.	Federal Terr.	C'wlth.
Wheat ...	33.00	27.10	1.98	24.09	13.58	0.24	...	0.01	100.00
position	1	2	5	3	4	6	...	7	
Hay ...	32.09	33.58	4.23	18.08	9.01	2.97	...	0.04	100.00
position	2	1	5	3	4	6	...	7	
Oats ...	7.94	52.31	0.78	17.96	14.48	6.52	...	0.01	100.00
position	4	1	6	2	3	5	...	7	
Maize ...	43.15	6.41	50.38	0.03	0.02	...	0.01	...	100.00
position	2	3	1	4	5	...	6	...	
Green Forage	38.33	12.71	29.98	9.56	7.33	2.08	...	0.01	100.00
position	1	3	2	4	5	6	...	7	
Orchards and Fruit Gardens...	23.42	32.24	9.82	11.18	8.44	14.89	...	0.01	100.00
position	2	1	5	4	6	3	...	7	
Sugar Cane	6.16	...	93.84	...	...	...	...	...	100.00
position	2	...	1	...	...	...	...	...	
Potatoes ...	14.97	49.12	5.94	3.16	3.90	22.91	...	...	100.00
position	3	1	4	6	5	2	...	...	
Barley ...	2.26	40.40	5.50	45.01	4.82	2.01	...	...	100.00
position	5	2	3	1	4	6	...	...	
Vineyards ...	13.25	35.58	1.92	44.62	4.63	...	...	...	100.00
position	3	2	5	1	4	...	...	...	
All other crops	12.52	26.81	38.89	5.52	8.10	8.16	...	...	100.00
position	3	2	1	6	5	4	...	...	
Total area under crop	30.73	28.87	5.27	21.58	11.93	1.61	...	0.01	100.00
position	1	2	5	3	4	6	...	...	

4. **Acreage of Principal Crops, Commonwealth.**—The acreage devoted to each of the principal crops in the whole Commonwealth during the last five seasons is shewn below:—

**ACREAGE OF CHIEF COMMONWEALTH CROPS, 1912-13 to 1916-17.**

Crop.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
	Acres.	Acres.	Acres.	Acres.	Acres.
Wheat ... ..	7,339,651	9,287,398	9,651,081	12,484,512	11,532,828
Hay ... ..	3,217,041	2,754,672	2,628,613	3,597,771	2,671,862
Oats ... ..	874,034	859,020	774,734	721,644	844,130
Green Forage ... ..	428,006	486,504	1,352,158	515,561	390,876
Maize ... ..	314,936	331,879	339,781	323,637	360,072
Orchards and Fruit Gardens ... ..	205,174	216,021	232,711	247,008	257,687
Barley ... ..	181,387	222,564	153,656	169,514	230,253
Sugar Cane ... ..	155,567	160,976	172,616	164,285	178,190
Potatoes ... ..	128,889	174,262	151,845	120,993	149,895
Vineyards ... ..	62,388	61,197	60,985	62,124	65,394
All other Crops ... ..	130,976	128,519	133,794	121,185	125,193
Total ... ..	13,038,049	14,683,012	15,651,974	18,528,234	16,806,380

During the period under review the area devoted to the several crops has varied considerably, that under wheat attaining a maximum in the season 1915-16, and a minimum in 1912-13, while hay also reached its maximum area in 1915-16, and its minimum in 1914-15. Of the other crops, maize, orchards and fruit gardens, sugar cane, barley and vineyards attained their maximum areas in 1916-17, green forage in 1914-15, potatoes in 1913-14, and oats in 1912-13.

**§ 4. Wheat.**

1. **Progress of Wheat-Growing.**—(i.) *Acreage.* The area under wheat for grain is given below for each State at various periods since 1860, and is shewn diagrammatically in the graph hereinafter:—

**AREA UNDER WHEAT, 1860-1 to 1917-18.**

Season.	N.S.W.	Victoria.	Q'land.	Sth. Aust.	W. Aust.	Tas.	N.T.	Fed. Terr.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1860-1	128,829	161,252	196	273,672	13,584	66,450	...	...	643,983
1865-6	131,653	178,628	2,068	410,608	22,249	73,270	...	...	818,476
1870-1	147,997	284,167	2,892	604,761	26,640	57,382	...	...	1,123,839
1875-6	133,609	321,401	4,478	898,820	21,561	42,745	...	...	1,422,614
1880-1	253,138	977,285	12,632	1,733,542	27,686	50,022	...	...	3,054,305
1885-6	264,867	1,020,082	10,093	1,922,555	29,511	30,266	...	...	3,277,374
1890-1	333,233	1,145,163	10,390	1,673,573	33,820	32,452	...	...	3,228,631
1895-6	596,684	1,412,736	27,090	1,649,929	23,241	64,652	...	...	3,774,332
1900-1	1,530,609	2,017,321	79,304	1,913,247	74,308	51,825	...	...	5,666,614
1905-6	1,939,447	2,070,517	119,356	1,757,036	195,071	41,319	...	...	6,122,746
1910-11	2,128,826	2,398,089	106,718	2,104,717	581,862	52,242	2	...	7,372,456
1911-12	2,379,968	2,164,066	42,962	2,190,782	612,104	37,208	2	742	7,427,834
1912-13	2,230,500	2,085,216	124,963	2,079,633	793,096	25,226	3	1014	7,339,651
1913-14	3,203,572	2,565,861	132,655	2,267,851	1,097,193	18,432	9	1825	9,287,398
1914-15	2,756,343	2,863,535	127,015	2,502,630	1,376,012	23,865	...	1681	9,651,081
1915-16	4,186,493	3,679,971	93,703	2,739,214	1,734,117	48,642	...	2372	12,484,512
1916-17	3,805,699	3,125,692	227,778	2,778,357	1,566,608	27,789	...	905	11,532,828
1917-18	3,232,700	2,690,216	148,174	2,355,682	1,249,637	21,812	...	†	9,698,221

\* Preliminary figures, except Victorian which are final. † Including Federal Territory.  
‡ Included with New South Wales.

The area devoted to the production of wheat for grain was higher for the season 1915-16 than for any previous season, there being an increase in all the States with the exception of Queensland, which shewed a falling-off. The figures for the season 1916-17 shew a reduction in area under wheat for grain in all the States with the exception of Queensland and South Australia, where the acreages for both States are the highest on record. The average area under wheat in the Commonwealth in the past ten seasons, 1907-17, was 8,232,838 acres. The past four seasons exceeded this average, while the previous six seasons fell short of it.

Although final figures for 1917-8 for all the States are not yet available, the data to hand indicate the total area under wheat for grain in the Commonwealth as about 9,700,000 acres, representing a decrease of nearly 16 per cent. on the 1916-17 area. New South Wales returns shew a decrease in acreage of about 15 per cent.; Victoria, 14 per cent.; Queensland, 35 per cent.; South Australia, 15 per cent.; Western Australia, 20 per cent.; and Tasmania, 16 per cent.

(ii.) *Yield.* The production during the same period for each State and for the Commonwealth as a whole is given below :—

#### PRODUCTION OF WHEAT, 1860-1 to 1917-18.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. T.	Federal Terr.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1860-1	1,581,598	3,459,914	3,136	3,576,593	208,332	1,415,896	...	...	10,245,469
1865-6	1,013,863	3,514,227	33,088	3,587,800	231,594	1,273,766	...	...	9,654,338
1870-1	999,595	2,870,409	39,787	6,961,164	316,769	896,881	...	...	12,084,605
1875-6	1,958,640	4,978,914	97,400	10,739,834	237,171	700,092	...	...	18,712,051
1880-1	3,717,355	9,727,369	223,243	8,606,510	332,232	750,040	...	...	23,356,749
1885-6	2,733,133	9,170,538	51,598	14,612,876	339,376	524,348	...	...	27,431,869
1890-1	3,649,216	12,751,295	207,990	9,399,389	467,389	642,980	...	...	27,115,259
1895-6	5,195,312	5,669,174	123,630	5,929,300	188,077	1,164,855	...	...	18,270,348
1900-1	16,173,771	17,847,321	1,194,088	11,253,148	774,653	1,110,421	...	...	48,353,402
1905-6	20,737,200	23,417,670	1,137,321	20,143,798	2,308,305	776,478	...	...	68,520,772
1910-11	27,913,547	34,813,019	1,022,373	24,344,740	5,897,540	1,120,744	20	...	95,111,983
1911-12	25,080,111	20,891,877	285,109	20,352,720	4,358,904	659,615	20	7,991	71,636,347
1912-13	32,466,506	26,223,104	1,975,505	21,496,216	9,168,594	630,315	...	20,830	91,981,070
1913-14	37,996,068	32,936,245	1,769,432	16,936,988	13,331,350	349,736	...	24,313	103,344,132
1914-15	12,812,803	3,940,947	1,585,087	3,527,428	2,624,190	384,220	...	17,727	24,892,402
1915-16	66,726,459	58,521,706	414,438	34,134,504	18,236,355	993,790	...	38,451	179,065,703
1916-17	36,585,380	51,162,438	2,463,141	45,745,064	16,103,216	348,330	...	12,620	152,420,189
1917-18*	37,843,930	37,737,552	1,405,664	28,692,594	9,304,995	252,383	...	†	115,237,118

\* Final figures Victoria and Queensland, those for remaining States approximate.

† Included with New South Wales.

The yield for the 1916-17 season was 152,420,189 bushels, which constitutes the second largest yield on record; the harvest of 1915-16 was the largest ever reaped in the Commonwealth, and exceeded by over 75,700,000 bushels that of 1913-14, the previous largest return; the 1910-11 yield was 95,111,983 bushels, that for 1912-13, 91,981,070 bushels, and that for 1909-10 was 90,413,597 bushels, these being the only five occasions, prior to 1916-17, on which a yield exceeding 90,000,000 bushels was obtained. The harvest for 1914-15 was poor, the prolonged drought having been disastrous to the wheat areas. The yield was 24,892,402 bushels, the lowest since 1902. The approximate estimate for the 1917-18 season gives 115,237,118 bushels, which, though shewing a decrease of more than 24 per cent. as compared with the previous season's returns, is, nevertheless, the third highest yield on record for the Commonwealth as a whole. The only State shewing an increased yield for 1917-18 was New South Wales, the increment being 3.4 per cent.

(iii.) *Average Yields.* In the next table will be found the average yield of wheat per acre in each of the seasons 1901-2 and 1912-13 to 1916-17 and for the decennium 1907-17 :—

## YIELD OF WHEAT PER ACRE, 1901-2 and 1912-13 to 1916-17.

Season.	N.S.W.	Vic.	Q'land.	S. Aus.	W. Aus.	Tasmania.	N.T.	Fed. Terr.	C'wealth.
	Bushels.	B'shls.	B'shls.	B'shls.	B'shls.	B'shls.	B'shls.	B'shls.	B'shls.
1901-2 ...	10.64	6.91	19.40	4.60	10.10	21.86	...	...	7.54
1912-13 ...	14.56	12.58	15.81	10.34	11.56	24.99	...	20.54	12.53
1913-14 ...	11.86	12.84	13.34	7.47	12.15	18.97	...	13.32	11.13
1914-15 ...	4.65	1.38	12.48	1.41	1.91	16.10	...	10.55	2.58
1915-16 ...	15.94	15.90	4.42	12.46	10.52	20.43	...	16.21	14.34
1916-17 ...	9.61	16.37	10.81	16.46	10.28	12.53	...	14.06	13.22
Average 10 seasons	11.50	11.90	11.43	10.46	9.20	20.05	...	14.28	11.13
1907-17									

As the above figures shew, there were considerable variations in the average yields, chiefly due to the vagaries of the season.

For the Commonwealth as a whole the average yield for 1914-15 of 2.58 bushels per acre was 8.55 below the average yield of 11.13 per acre during the last ten seasons. The highest average yield for any State for that season was in Tasmania with 16.10 bushels per acre, and the lowest in Victoria with 1.38 bushels per acre. The yield of 14.34 bushels per acre for the Commonwealth for 1915-16 exceeded that of any year since 1866 by more than three-fifths of a bushel, while the yield of 13.22 bushels per acre for 1916-17 has been exceeded only four times in the last fifty years. The Victorian average of 16.17 for 1916-17 was the highest recorded for that State since 1872, while the Tasmanian average of 12.53 was the lowest ever experienced there.

(iv.) *Relation to Population.* During the seasons embraced in the following table, the Commonwealth's production of wheat per head of population has varied between  $3\frac{1}{2}$  bushels in 1902-3 and  $36\frac{1}{2}$  bushels in 1915-16. The State in which wheat-growing occupies the most important position relatively to population is South Australia, which in 1916-17 had a yield averaging over 105 bushels per head. Queensland and Tasmania are the States in which the average production of wheat per head is least, the quantity raised being considerably below that required for local consumption. Particulars for 1901-2 and the past six seasons are as follows:—

## AUSTRALIAN WHEAT PRODUCTION PER 1000 OF POPULATION, 1901-2 and 1912-13 to 1917-18.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N.T.	Fed. Terr.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bush'ls	Bush'ls	Bushels.
1901-2	10,766	10,023	3,340	22,299	4,943	5,499	...	...	10,082
1912-13	18,265	18,995	3,104	49,981	29,950	3,196	...	10,737	19,433
1913-14	20,743	23,324	2,680	38,489	41,572	1,734	...	12,230	21,212
1914-15	6,883	2,755	2,342	7,986	8,124	1,908	...	9,049	5,038
1915-16	35,675	41,241	611	77,854	57,344	4,944	...	21,023	36,307
1916-17	19,685	36,574	3,679	105,718	52,147	1,742	...	5,677	31,264
1917-18*	20,217	26,851	2,066	66,389	30,154	1,242	...	†	23,350

\* Approximate, except for Victoria and Queensland. † Included with New South Wales.

The normal annual consumption of wheat in Australia, exclusive of the requirements for seed, poultry and other live stock, is 325 lbs. (5.42 bushels) per head of population.

2. *Australian and Foreign Wheat Yields.*—In the next table will be found a statement of the average return per acre in the principal wheat-growing countries of the world, ranging from Denmark with a maximum of 38.52 bushels per acre, to Mexico with a minimum of under 3 bushels per acre. Australia with approximately 13.22 occupies a relatively subordinate position.



## AVERAGE YIELD OF WHEAT PER ACRE IN VARIOUS COUNTRIES, 1916.

Country.	Average Yield in bushels per acre.	Country.	Average Yield in bushels per acre.
Denmark ...	38.52	Spain ...	14.66
Belgium (1914) ...	34.94	Italy ...	14.65
Sweden (1912) ...	30.08	Chile (1915) ...	14.41
United Kingdom ...	29.48	<b>Australia</b> ...	<b>13.22</b>
Netherlands ...	28.75	Russia in Asia (1914) ...	12.44
Germany (1915) ...	27.75	United States ...	11.75
Egypt ...	24.48	Algeria (1915) ...	10.47
Bulgaria (1913) ...	23.82	India ...	10.23
New Zealand ...	23.20	Argentine Republic ...	10.19
Canada ...	21.18	Portugal (1911) ...	9.78
Austria (1913) ...	19.89	Russia in Europe (1914) ...	9.07
Japan ...	18.51	Union of South Africa ...	8.45
Hungary (1915) ...	17.89	Uruguay ...	8.33
France ...	16.08	Tunis ...	4.69
Serbia (1914) ...	16.03	Mexico (1914) ...	2.97
Rumania ...	15.72		

3. **Wheat Crops of the World.**—The latest available official statistics of the production of wheat in various countries are given in the following table:—

## WHEAT YIELD IN VARIOUS COUNTRIES, 1916.

Country.	Yield in Bushels.	Country.	Yield in Bushels.
United States ...	620,305,488	Turkey in Asia (1915) ...	33,929,000
Russia in Europe (1914)* ...	561,541,430	Algeria (1915) ...	33,593,588
India ...	308,274,047	Japan ...	23,696,014
Canada ...	213,623,770	Chile ...	20,497,963
France ...	206,689,652	Turkey in Europe (1915) ...	17,449,200
Italy ...	171,127,213	Persia (1915) ...	15,510,400
Argentine Republic ...	167,337,828	Serbia (1915) ...	9,694,000
Russia in Asia (1914) ...	167,287,419	Sweden (1915) ...	8,889,398
<b>Australia</b> ...	<b>152,420,189</b>	Uruguay ...	7,917,090
Hungary (1915) ...	148,254,220	Belgium (1915) ...	7,755,200
Spain ...	147,667,733	Portugal ...	7,118,304
Germany (1915) ...	137,340,714	Tunis ...	6,945,751
Rumania ...	76,117,288	Denmark ...	5,855,176
United Kingdom ...	60,462,447	New Zealand ...	5,051,227
Austria (1915) ...	54,286,400	Union of South Africa ...	4,708,376
Bulgaria ...	37,070,825	Netherlands ...	3,910,560
Egypt ...	35,424,784	Mexico (1915) ...	3,877,600

\* Including Poland and Northern Caucasia.

Various estimates of the total quantity of wheat produced in the world have been made. That furnished by the International Institute of Agriculture, Rome, gives the following figures for the ten years 1907 to 1916:—

## WORLD'S PRODUCTION OF WHEAT, 1907 to 1916.

Year.	1,000,000 bushels.	Year.	1,000,000 bushels.	Year.	1,000,000 bushels.
1907 ...	3,131	1911 ...	3,512	1915 ...	4,492
1908 ...	3,137	1912 ...	3,795	1916 ...	3,657
1909 ...	3,569	1913 ...	4,048	Average for	
1910 ...	3,525	1914 ...	3,548	10 years ...	3,641

In this estimate the figures given for Australia and New Zealand relate to the agricultural year ending on 31st March in the year specified.

For the ten years referred to, the Australian production of wheat aggregated 830,113,000 bushels, thus representing 2.3 per cent. of the world's production. The total quantity of wheat produced in the British Empire during the same period of ten years was approximately 7,214 million bushels, so that the Australian production of wheat represented 11.5 per cent. of that of the British Empire, while the British Empire production represented 19.8 per cent. of the world's total.

4. **Prices of Wheat.**—(i.) *British Wheat.* Since the United Kingdom is the largest importer of Australian wheat, the price of wheat in the British markets is a matter of prime importance to the local producer. The table below gives the average prices per Imperial quarter realised for British-grown wheat:—

**PRICES OF BRITISH WHEAT PER QUARTER, 1861 to 1916.**

Year.	Average for Year.	Highest Weekly Average.	Lowest Weekly Average.	Year.	Average for Year.	Highest Weekly Average.	Lowest Weekly Average.
	s. d.	s. d.	s. d.		s. d.	s. d.	s. d.
1861 ...	55 4	61 6	50 0	1907 ...	30 7	36 3	26 0
1871 ...	56 8	60 0	52 6	1908 ...	32 0	35 6	30 5
1881 ...	45 4	55 2	40 9	1909 ...	36 11	44 9	31 4
1891 ...	37 0	41 8	32 3	1910 ...	31 8	33 9	29 0
1901 ...	26 9	27 8	25 8	1911 ...	31 8	33 4	30 0
1902 ...	28 1	31 8	24 10	1912 ...	34 9	39 2	29 10
1903 ...	26 9	30 3	24 11	1913 ...	31 8	34 3	30 0
1904 ...	28 4	30 6	26 3	1914 ...	34 11	43 3	30 11
1905 ...	29 8	32 3	26 8	1915 ...	52 10	62 0	42 9
1906 ...	28 3	30 9	25 9	1916 ...	58 5	75 10	46 3

(ii.) *Australian Export Values.* In the next table will be found a statement of the export values of Australian wheat during each of the last ten years:—

**EXPORT VALUES OF AUSTRALIAN WHEAT, 1907 to 1916-17.**

Year.	1907.	1908.	1909	1910.	1911.	1912.	1913.	1914-15.	1915-16.	1916-17.
Price per bushel	3s. 4d.	4s. 1d.	4s. 2d.	4s. 2d.	3s. 6d.	3s. 11d.	3s. 9d.	4s. 1d.	5s. 7d.	4s. 10d.

The export values here shewn are the average declared values for the successive years at the several ports of shipment in the Commonwealth.

5. **Imports and Exports of Wheat and Flour.**—(i.) *Quantities.* The table hereunder shews the imports, exports, and net exports of wheat and flour during 1901 and from 1912 to 1916-17. For the sake of convenience, flour has been expressed at its equivalent in wheat, one ton of flour being taken as equal to 50 bushels of grain. During 1903 and 1915-16 the Commonwealth imports of wheat and flour were equivalent to 12,607,940 and 5,633,596 bushels of wheat respectively. This importation was necessitated in each case by the failure of the crop in the preceding season. In ordinary seasons the import of wheat and flour is negligible. During the past five years the export has ranged between 6,886,293 bushels in 1914-15 and 69,810,522 bushels in 1916-17, the net exports for the period averaging 40,077,246 bushels.

**IMPORTS AND EXPORTS OF WHEAT AND FLOUR, COMMONWEALTH, 1901 AND 1912 TO 1916-17.**

Year.	Imports.			Exports.			Net Exports.
	Wheat.	Flour.	Total.	Wheat.	Flour.	Total.	
	Bushels.	Eq. Bshls.*	Bushels.	Bushels.	Eq. Bshls.*	Bushels.	Bushels.
1901	22,992	302,550	325,542	20,260,058	4,840,700	25,100,758	24,775,216
1912	1,483	7,300	8,783	32,604,248	8,404,700	41,008,948	41,000,165
1913	60	2,650	2,710	42,922,887	11,082,900	54,005,787	54,003,077
1914-15	1,641,237	5,150	1,646,387	4,210,593	2,675,700	6,886,293	5,239,906
1915-16	5,616,696	16,900	5,633,596	23,621,445	7,347,750	35,969,195	30,335,599
1916-17	40	3,000	3,040	55,278,872	14,531,650	69,810,522	69,807,482

\* Equivalent in bushels of wheat.

(ii.) *Destination of Exported Breadstuffs.* In the next two tables will be found a list of the principal countries to which the Commonwealth exported wheat and flour during each year of the period 1912 to 1916-17. The countries are as shewn in the Australian Customs returns, but owing to the fact that in normal times wheat ships are frequently instructed to call for orders at various ports, the countries to which these ports belong cannot always be considered as the ultimate destination of the whole of the wheat said to be exported to them.

#### EXPORTS OF WHEAT FROM THE COMMONWEALTH, 1912 to 1916-17.

Country to which Exported.	1912.	1913.	1914-15.	1915-16.	1916-17.	Total for Five Years.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
U. Kingdom	23,099,670	27,922,717	1,532,693	14,494,248	22,715,735	89,765,063
Union of South Africa	1,784,382	4,482,865	1,088,507	2,919,608	6,549,395	16,824,757
Canary Is.*	3,107,257	1,477,005	...	2,960,558	884,615	8,429,435
France ...	53,773	1,943,208	9,482	2,186,567	8,562,240	12,755,270
Peru ...	1,201,682	943,130	290,810	156,302	1,154,355	3,746,279
Belgium ...	1,414,263	1,742,803	...	...	...	3,157,066
Chile ...	...	...	650,510	...	...	650,510
Japan ...	42,550	1,215,778	223,996	...	...	1,482,324
Germany ...	556,508	290,553	...	...	...	847,061
Italy ...	488,697	1,879,923	157,000	3,258,313	8,154,602	13,938,535
Egypt ...	427,988	92,413	...	267,568	4,842,000	5,629,969
Philippine I.	1,667	...	...	2	63	1,732
New Zealand	1,695	...	151,042	30,380	225,852	408,969
New Caledonia ...	1,400	1,129	743	173	285	3,730
Ceylon ...	1,487	1,748	853	337	1,247	5,672
Other Countries ...	421,229	929,615	104,957	2,347,385	2,188,483	5,991,669
Total ...	32,604,248	42,922,887	4,210,593	28,621,441	55,278,872	163,638,041

\* For orders.

The exports of flour during the same period and the principal countries of destination were as follows:—

#### EXPORTS OF FLOUR FROM THE COMMONWEALTH, 1912 to 1916-17.

Country to which Exported.	1912.	1913.	1914-15.	1915-16.	1916-17.	Total for Five Years.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
United Kingdom	38,535	18,894	850	43,604	127,502	229,385
Union of Sth. Africa	26,230	38,209	14,075	22,019	25,106	125,639
Java ...	29,275	38,103	6,003	11,674	13,826	98,881
Portuguese East Africa ...	4,264	15,612	3,163	216	409	23,664
Philippine Islands	16,240	14,366	3,313	3,383	...	37,302
Straits Settlements	15,177	21,625	3,352	5,023	9,755	54,932
Hong Kong ...	1,952	2,466	140	1,442	648	6,648
New Zealand ...	1,641	3,057	5,064	2,190	9,006	20,958
New Caledonia ...	4,012	4,143	3,791	3,566	3,533	19,045
Mauritius ...	1,240	1,906	1,810	...	112	5,068
Ceylon ...	3,901	5,454	2,173	342	20	11,890
China ...	1,738	2,188	545	384	335	5,190
Fiji ...	2,429	2,619	1,834	1,257	2,199	10,338
Japan ...	453	610	2	53	300	1,418
Other Countries ...	21,007	52,406	7,399	51,802	97,882	230,496
Total ...	168,094	221,658	53,514	146,955	290,633	880,854

For the five years under review the export of wheat to the United Kingdom amounted to 89,765,063 bushels, or nearly 55 per cent. of the total export for the period. On the other hand, the export of flour to the United Kingdom aggregated only 229,385 tons, or 26 per cent. of the total export. During the quinquennium the heaviest exports of flour have been to the United Kingdom, South Africa, Java, the Straits Settlements, the Philippine Islands, and Portuguese East Africa.

(iii.) *Exports of Wheat and Flour.* From the foregoing returns it will be seen that the quantity of Australian wheat exported in the form of flour during the past five years represents, on the average, slightly over 21 per cent. of the total equivalent in wheat exported as wheat or flour from the Commonwealth.

A point of some interest in connection with the export of wheat, and one which bears also on the proportions of wheat and flour exports just referred to, is that concerning the quantity of phosphoric acid which this export has the effect of removing from the Commonwealth, and the necessity which exists for the return to the soil of this substance in some form.

According to an estimate furnished by the chemist to the New South Wales Department of Agriculture (F. B. Guthrie, Esq., F.C.S., etc.), the proportions of milled product from a bushel (60 lbs.) of wheat are, approximately, 42 lbs. of flour, 9 lbs. of bran, and 9 lbs. of pollard, while the percentage of phosphoric acid contained in these products is as follows:—

Flour ...	...	...	0.32 per cent.,	or 0.13 lb. per bushel.
Bran ...	...	...	3.00	" 0.27 "
Pollard ...	...	...	0.90	" 0.08 "

The total amount of phosphoric acid contained in a bushel of wheat is, therefore, 0.48 lb., of which 0.13 lb. is in the flour and 0.35 lb. in the offal.

During the past ten years the net exports from the Commonwealth of wheat and its milled products have amounted to 334,647,905 bushels of wheat, 1,605,155 tons of flour, and 3,465,795 bushels of bran, pollard, and sharps. On the basis of the figures quoted above this export would contain no less than 172,000,000 lbs. of phosphoric acid, the value of which as a fertiliser would be over a million pounds sterling.

(iv.) *Local Consumption of Wheat.* The estimated consumption of wheat for food and for seed purposes in the Commonwealth during the past ten years is given in the following tables:—

**WHEAT USED FOR HUMAN CONSUMPTION IN THE COMMONWEALTH,  
1907 TO 1915-16.**

Year.	Flour Milled.	Net Exports of Flour.			Net Quantity Available for Home Consumption.		Net Quantity Available per Head of Population.	
		Flour.	Flour in Biscuits Exp'd.		Flour.	Equivalent in Terms of Wheat.	Flour.	Equivalent in Terms of Wheat.
	Tons.	Tons.	Tons.		Tons.	Bushels.	Tons.	Bushels.
1907 ...	652,135	163,064	1,840		487,231	24,361,550	.1182	5.908
1908 ...	552,388	116,625	1,810		433,953	21,697,650	.1035	5.173
1909 ...	603,688	129,889	1,980		471,819	23,590,950	.1104	5.519
1910 ...	649,282	139,774	2,340		507,168	25,358,400	.1161	5.803
1911 ...	691,301	175,649	2,570		513,082	25,654,100	.1143	5.713
1912 ...	677,053	167,948	2,820		506,285	25,314,250	.1090	5.450
1913 ...	760,613	221,605	2,600		536,408	26,820,400	.1117	5.583
1914 ...	713,845	174,180	2,400		537,265	26,863,250	.1092	5.461
1915 ...	541,810	7,633	2,160		532,017	26,600,850	.1075	5.374
1915-16 ...	577,038	146,618	2,650		427,770	21,388,500	.0867	4.335
Aggregate 10 years ...	6,419,153	1,442,985	23,170		4,952,998	247,649,900	.1084	5.422

**ESTIMATED QUANTITY OF WHEAT USED FOR SEED PURPOSES IN THE  
COMMONWEALTH, 1907 to 1916.**

Year.	Wheat for Seed Purposes.			
	Area.	Quantity.	Per Acre.	Per Head of Population.
	Acres.	Bushels.	Bushels.	Bushels.
1907 ... ..	6,329,037	6,261,000	.989	1.518
1908 ... ..	6,535,433	6,429,000	.984	1.533
1909 ... ..	7,582,238	7,322,000	.966	1.713
1910 ... ..	8,527,308	8,332,000	.977	1.907
1911 ... ..	8,859,949	8,282,000	.935	1.844
1912 ... ..	9,112,676	8,484,000	.931	1.827
1913 ... ..	10,661,430	9,747,000	.914	2.029
1914 ... ..	11,012,679	10,059,000	.913	2.045
1915 ... ..	14,414,024	13,041,000	.905	2.634
1916 ... ..	12,894,917	11,523,000	.894	2.348
Aggregate for 10 years ...	95,929,691	89,480,000	.933	1.959

In addition to the above, there is to be taken into consideration grain fed to poultry and other live stock. This, doubtless, varies in quantity from year to year according to the prices current for wheat, and other causes. No data are available on which to base an estimate of actual quantity so consumed. The flour available for human consumption necessarily fluctuates from year to year coincident with stocks being heavy or light. In some years the flour available per head of population, after deducting net exports from quantity milled, shows a substantial increase over the average for the previous year, this, however, being counterbalanced by a decline in the following year. The average quantity of flour consumed per annum for the ten years under consideration was 0.1084 tons per head of population, which, when expressed in equivalent terms in wheat, represents 5.422 bushels. The estimates of quantity of grain used for seed purposes have been based on data supplied by the Agricultural and Statistical Departments of the several States giving average quantities of seed used per acre for wheat sown either for grain, hay or green fodder. The average annual quantity thus used during the ten years was 1.959 bushels per head of population, and 0.933 bushels or 56 lbs. per acre sown.

A steady decline in the average quantity of seed wheat per acre is in evidence during the period under review, chiefly due to the general use of more economical methods of sowing by the use of drills, etc.

Reference will be found in a subsequent section to Commonwealth and State legislation for control of trade and prices of commodities during the war. Various State Boards and Commissions and a Federal Royal Commission were appointed to collect information and to report on such matters as the supply of foodstuffs and other necessities required by, and available for, Australia, and other important matters relating to conditions of trade and industry.

**6. Value of the Wheat Crop.**—The estimated value of the wheat crop in each State and in the Commonwealth during the season 1916-17 is shewn below :—

**VALUE OF THE WHEAT CROP,\* 1916-17.**

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Fed. Terr.	C'w'lth.
	£	£	£	£	£	£	£	£
Aggregate value ...	7,774,400	11,511,549	656,835	10,864,453	3,052,901	82,728	2,680	33,945,549
Value per acre ...	£2/0/10	£3/13/8	£2/17/8	£3/18/2	£1/19/0	£2/19/7	£2/19/3	£2/18/10

\* Exclusive of the value of straw.

**7. The Australian Wheat Marketing Scheme.**—(i.) *General Principles.* Owing to the abnormal conditions prevailing, a Wheat Marketing Scheme was entered into by the Governments of the Commonwealth and of the States of New South Wales, Victoria,

South Australia, and Western Australia, for the purpose of realising to the best advantage the 1915-16 wheat harvest of the States named, and of making advances to farmers pending realisation. It was subsequently decided that the 1916-17 harvest, and later, the 1917-18 harvest, should be dealt with on similar lines to those of the 1915-16 harvest.

The general principles of the scheme may be shortly stated thus:—

1. That all growers should participate equitably in the realisation of the harvest and the proceeds thereof.
2. That the limited freights available should be allotted between the States in accordance with the exportable surplus of each.

The securing and general allotment of freights is under the control of the Chartering Agents, who are responsible to the Commonwealth Government.

The distribution of freights among the States is in charge of the Australian Wheat Board, which also has the duty of realising the crop. This Board consists of Ministerial representatives of the Governments of the Commonwealth and of the States and an elected representative of the growers. It has the assistance of an Advisory Board consisting of well-known wheat shippers. A London Wheat Committee, consisting of the High Commissioner and the Agents-General of the States concerned, acting with the advice of the London representatives of the wheat shippers, arranges overseas sales. Adjustments are to be made between the States so that, having regard to the quantity shipped, each will ultimately receive the average net result of the whole of the overseas realisations.

In certain States the crop is bought by the State Government, and in others the wheat is received from the growers for sale on their behalf.

The Australian Wheat Board fixes all prices at which wheat may be sold, except in the case of poultry feed, which is left to the States to regulate.

Each State has a local Board or Commission to control the operations of the scheme within the State concerned. This Board or Commission effects all local sales, including sales to millers.

(ii.) *Advances and Finance.* Under arrangements with the Australian banks made by the Commonwealth and State Governments, advances are made to farmers upon delivery of their wheat at railway stations to representatives of agents appointed by the different State Governments. Upon the 1915-16 crop, advances made amount to 4s. 6d. per bushel, less rail freight and handling charges. This will still leave for distribution a small amount, varying in the different States in accordance with differences in local realising, and in interest and other expenses. Upon the 1916-17 and 1917-18 crops, advances have been made amounting to 3s. per bushel. This represents the position as at 29th April, 1918; a reference to later developments will be found in the Appendix.

Proceeds of wheat as realised are applied in reduction of the bank overdrafts caused by payment of advances and expenses. The rate of interest payable to the banks is five per cent. The Government of each State has undertaken to repay all advances made on account of such State, and the Commonwealth Government has guaranteed repayment by the States. Advances to growers are made by means of certificates issued by the agents appointed by the various States. The certificates are payable at banks named by the growers.

(iii.) *Results of the Scheme.* In all the States, certain wheat, particularly seed wheat, has not been brought under the scheme. The quantity of wheat pooled therefore differs from that harvested in each State. In addition, wheat grown in one State may be pooled in another. A considerable quantity of New South Wales wheat is included in Victorian returns, and the Victorian total also includes a small quantity of South Australian wheat.

Deliveries made on account of each harvest are as follows :—

State in which pooled.	1915-16.	1916-17.	1917-18 to 29/4/18.
	Bushels.	Bushels.	Bushels.
New South Wales ...	58,244,000	32,471,000	32,618,000
Victoria ...	59,176,000	50,392,000	35,607,000
South Australia ...	29,894,000	41,990,000	25,304,000
Western Australia ...	14,943,000	13,825,000	7,350,000
Total ...	162,257,000	138,678,000	100,879,000

On 29th April, 1918, the total overdraft on all pools amounted to £11,034,000.

The quantities of wheat disposed of and on hand on that date were as follows (a bag may roughly be taken as equivalent to three bushels, except in New South Wales 1916-17, where it amounts to 2½ bushels per bag):—

Particulars.	N.S.W.	Vic.	S.A.	W.A.	Total.
1915-16. (In thousands of bags).					
Shipments ...	9,726	11,949	5,690	3,428	30,793
Local Sales ...	9,786	6,706	3,076	1,640	21,208
Stocks on hand ...	16	756	1,034	...	1,806
Total ...	19,528	19,411	9,800	5,068	53,807
1916-17. (In thousands of bags).					
Shipments ...	856	122	1,675	558	3,211
Local Sales ...	2,868	3,868	968	1,523	9,227
Stocks on hand ...	8,069	12,601	11,099	2,402	34,171
Total ...	11,793	16,591	13,742	4,483	46,609
1917-18. (In thousands of bags).					
Shipments ...	16	...	...	...	16
Local Sales ...	799	526	...	...	1,325
Stocks on hand ...	10,406	11,157	8,414	2,451	32,428
Total ...	11,221	11,683	8,414	2,451	33,769

The value realised to 29th April, 1918 (all pools) is as follows :—

Particulars.	N.S.W.	Vic.	S.A.	W.A.	Total.
Oversea shipments and A.W.B. Flour Contracts	£ 8,934,000	£ 10,743,000	£ 6,801,000	£ 3,430,000	£ 29,908,000
Local Sales ...	8,083,000	6,370,000	1,548,000	1,123,000	17,124,000
Total shipments and local deliveries	17,017,000	17,113,000	8,349,000	4,553,000	47,032,000

Since the initiation of the "Pool," several sales of magnitude have been made, including one of 3,000,000 tons to the British Wheat Commission, at a rate of 4s. 9d. per bushel f.o.b., equalling £26,600,000. This is the largest wheat transaction ever recorded.

### § 5. Oats.

1. **Progress of Cultivation.**—Oats came next in importance to wheat amongst the grain crops cultivated last season, but while wheat grown for grain accounted for over 68½ per cent., oats represented only 5 per cent. of the area under crop in the Commonwealth. The progress of cultivation of oats since 1860 is shewn in the table hereunder, and more fully in the graphs hereinafter:—

**CULTIVATION OF OATS, 1860-1 to 1916-17.**

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Federal Terr.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1860-1	6,535	86,337	7	2,273	507	30,303	...	125,962
1865-6	10,939	102,817	348	2,872	1,232	28,538	...	146,746
1870-1	10,683	149,309	122	6,188	2,095	30,946	...	199,343
1875-6	18,856	124,100	114	3,640	1,256	32,556	...	180,522
1880-1	17,923	134,089	116	4,355	1,319	19,853	...	177,655
1885-6	14,117	215,994	208	7,871	1,596	29,247	...	269,033
1890-1	14,102	221,048	411	12,475	1,934	20,740	...	270,710
1895-6	23,750	255,503	922	34,098	1,880	32,699	...	348,852
1900-1	29,383	362,689	385	27,988	4,790	45,073	...	470,308
1905-6	38,543	312,052	533	56,950	15,713	42,776	...	466,567
1910-11	77,991	392,681	2,537	77,674	61,918	63,887	...	676,688
1911-12	70,880	302,298	557	107,881	77,488	57,583	167	616,794
1912-13	84,979	439,242	4,232	155,545	127,645	62,445	196	874,284
1913-14	103,262	442,060	4,093	116,932	133,625	58,886	154	859,020*
1914-15	43,285	434,815	2,728	140,567	96,085	57,063	191	774,734
1915-16	58,449	353,932	339	126,529	104,086	78,212	97	721,644
1916-17	67,003	441,598	6,564	151,609	122,220	55,028	108	844,130

\* Including 8 acres, Northern Territory.

2. **Total Yield.**—The total oat crop of the several States for the same period is furnished in the following table:—

**COMMONWEALTH OAT CROP, 1860-1 to 1916-17.**

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Fed. Terr.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bush'ls	Bushels.
1860-1	98,814	2,633,693	91	52,989	11,925	926,418	...	3,723,930
1865-6	116,005	2,279,468	4,524	42,642	19,005	688,740	...	3,150,384
1870-1	119,365	2,237,010	1,586	88,383	39,974	691,250	...	3,177,568
1875-6	352,966	2,719,795	1,482	60,749	18,840	827,043	...	3,980,875
1880-1	356,121	2,362,425	2,081	50,070	21,104	439,446	...	3,231,247
1885-6	279,107	4,692,303	1,006	97,201	23,142	784,325	...	5,877,084
1890-1	256,659	4,919,325	8,967	116,229	38,791	519,395	...	5,859,366
1895-6	374,196	2,880,045	10,887	184,012	19,326	906,934	...	4,375,400
1900-1	593,548	9,582,332	7,855	366,229	86,433	1,406,913	...	12,043,310
1905-6	883,081	7,232,425	5,858	869,146	283,987	1,200,024	...	10,474,521
1910-11	1,702,706	9,699,127	50,469	1,136,618	776,233	2,063,303	...	15,428,456
1911-12	1,152,889	4,585,326	5,783	1,349,480	961,385	1,504,633	2,337	9,561,833
1912-13	1,669,259	8,323,639	82,420	1,673,508	2,105,812	2,257,258	4,816	16,116,712
1913-14	1,832,616	8,890,321	56,236	1,200,740	1,655,681	1,593,664	2,790	15,232,048
1914-15	511,759	1,608,419	43,607	368,425	464,943	1,341,800	2,151	4,341,104
1915-16	1,344,138	9,328,894	2,451	2,134,374	1,538,092	2,189,467	1,560	16,538,979
1916-17	1,083,030	8,289,289	108,664	1,839,541	1,689,352	1,006,183	1,950	14,018,009



The principal oat-growing State of the Commonwealth is Victoria. During the past five seasons it has produced about 55 per cent. of the total quantity of oats grown in the Commonwealth; Tasmania, Western Australia, South Australia, and New South Wales come next in order of importance. In New South Wales and Tasmania, the highest production of oats for any season was that of 1909-10, while Victoria and South Australia experienced maximum yields in 1915-16, Queensland in 1916-17, and Western Australia in 1912-13. For the Commonwealth as a whole, the record yield was that of 17,541,210 bushels in the season 1908-9, while the yields of 16,538,979 and 16,248,857 for 1915-16 and 1908-9 respectively, rank second and third.

3. **Average Yield.**—The average yield per acre of the oat crop of the Commonwealth varies considerably in the different States, being highest in Tasmania and lowest in South Australia. Particulars as to average yield in each of the seasons 1901-2 and 1912-13 to 1916-17, and also for the decennium 1907-17, are given in the succeeding table:—

**AVERAGE YIELD OF OATS PER ACRE, 1901-2 and 1912-13 to 1916-17.**

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Fed. Terr.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1901-2 ...	21.31	20.43	27.50	13.54	16.78	31.48	...	21.22
1912-13 ...	19.64	18.95	19.48	10.76	16.50	36.15	24.57	18.43
1913-14 ...	17.75	20.11	13.74	10.27	12.39	27.06	18.12	17.73
1914-15 ...	11.82	3.70	15.98	2.62	4.84	23.51	11.26	5.60
1915-16 ...	23.00	26.36	7.24	16.87	14.78	27.99	16.08	22.92
1916-17 ...	16.16	18.77	16.55	12.13	13.82	18.28	18.06	16.61
Average for 10 Seasons 1907-17	18.31	18.70	17.01	11.80	13.19	28.87	17.09	17.79

The smallest average yield per acre for the Commonwealth for the past ten-year period was that experienced in the abnormally dry season 1914-15, viz., 5.60 bushels, while the largest was that of the season 1908-9, amounting to 24.03 bushels per acre.

4. **Relation to Population.**—The State in which oat production occupies the most important position in relation to population is Tasmania, the yield for that State representing about 8.5 bushels per head during the last five years under review, as compared with 2.7 bushels per head for the Commonwealth as a whole. Particulars for the seasons 1901-2 and 1912-13 to 1916-17 are furnished in the succeeding table:—

**OAT PRODUCTION PER 1000 OF POPULATION, 1901-2 and 1912-13 to 1916-17.**

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Federal Territory.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1901-2	500	5,558	83	1,306	845	9,734	...	2,559
1912-13	939	6,029	129	3,891	6,879	11,446	2,482	3,405
1913-14	1,000	6,296	85	2,729	5,163	7,902	1,403	3,126
1914-15	275	1,124	64	834	1,439	6,662	1,098	879
1915-16	719	6,574	4	4,868	4,837	10,892	820	3,353
1916-17	583	5,926	162	4,251	5,471	5,033	877	2,875

5. **Value of Oat Crop.**—The estimated value of the oat crop of the several States of the Commonwealth for the season 1916-17 is as follows:—

**VALUE OF OAT CROP,\* 1916-17.**

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Fed. Terr.	C'wealth.
Aggregate value	£151,170	£596,006	£19,469	£176,289	£214,688	£125,772	£270	£1,585,664
Value per acre	£2/5/2	£2/0/8	£2/19/4	£1/3/3	£1/15/2	£2/5/8	£2/10/0	£1/17/7

\* Exclusive of the value of straw.

**6. Imports and Exports.**—The production of oats in the Commonwealth has not yet reached such a stage as to admit of a regular export trade in this cereal; in fact in certain years the imports have exceeded the exports, notably in 1903, 1906, 1908, and in each of the four years prior to 1916-17. The quantities and values of oats imported into and exported from the Commonwealth during the years 1901 and 1912 to 1916-17 are given hereunder:—

**COMMONWEALTH IMPORT AND EXPORT OF OATS, 1901 and 1912 to 1916-17.**

Year.	Imports.		Exports.		Net Exports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Bushels.	£	Bushels.	£	Bushels.	£
1901	1,526,599	153,674	2,874,334	285,347	1,347,735	131,673
1912	2,939,325	398,114	106,275	14,688	—2,833,050	— 383,426
1913	146,102	20,282	111,280	14,102	— 34,822	— 6,180
1914-15	1,767,490	344,201	38,163	7,904	—1,729,327	— 336,297
1915-16	2,473,412	501,755	582,055	85,119	—1,891,357	— 416,636
1916-17	3,700	635	670,985	97,879	667,285	97,244

Note. — signifies net imports.

The principal countries from which the Commonwealth imports of oats have been obtained are the Dominion of New Zealand, Chili, Japan, and the United States of America, while the principal countries to which oats were exported during the period under review were the South African colonies in the earlier, and the United Kingdom, Ceylon, India and New Zealand in the later years. Of the 670,985 bushels exported during 1916-17, 438,900 bushels were shipped to New Zealand.

**7. Oatmeal, etc.**—Importations of oatmeal, etc., into the Commonwealth take place principally from the United Kingdom, the United States, and Canada. The total importations of oatmeal, wheatmeal, and rolled oats during 1916-17 amounted to 384,841 lbs., and represented a value of £7,597 while the exports amounted to 589,003 lbs., valued at £7,395, principally to New Zealand and the Union of South Africa.

**8. Comparison with other Countries.**—A comparison of the Australian production of oats with that of the leading oat-producing countries of the world, is furnished in the following table:—

**PRODUCTION OF OATS IN VARIOUS COUNTRIES, 1916.**

Country.	Quantity of Oats produced.	Country.	Quantity of Oats produced	Country.	Quantity of Oats produced.
	Bushels.		Bushels.		Bushels.
United States ...	1,213,681,045	Sweden (1915)	88,516,883	Algeria (1915)	14,620,490
Russia in Europe		Hungary (1915)	78,448,695	<b>Australia ...</b>	<b>14,018,009</b>
(1914)...	700,379,867	Argentine Rep.	72,976,432	Norway ...	10,584,879
Germany (1915)	399,780,056	Denmark ...	40,988,171	Union of	
Canada ...	340,428,076	Belgium (1915)	38,776,000	South Africa	
France ...	238,625,565	Spain ...	33,878,591	(1915)...	9,365,373
United Kingdom	180,350,084	Rumania ...	28,049,589	Bulgaria ...	7,146,417
Austria (1915)...	136,685,400	Italy ...	25,387,617	New Zealand	5,371,436
Russia in Asia...	92,061,010	Netherlands ...	21,558,487		
(1915)					

**9. Comparison of Yields.**—The average yield per acre of oats in Australia is a somewhat low one compared with the results obtained in other countries, where the cultivation of this cereal is more extensively carried on. Arranging the countries contained in the foregoing table (with the exception of the Union of South Africa, for which particulars are not available) according to the magnitude of the average yield of oats for the years specified, the results are as follow:—

## YIELD OF OATS PER ACRE, VARIOUS COUNTRIES, 1916.

Country.	Average per Acre.	Country.	Average per Acre.	Country.	Average per Acre.
	Bushels.		Bushels.		Bushels.
Belgium (1914) ...	70.29	France ...	30.61	Spain ...	24.36
Netherlands ...	62.85	New Zealand ...	30.26	Italy ...	23.04
United Kingdom ...	43.50	Hungary (1915)...	29.45	Bulgaria (1914) ...	20.90
Denmark ...	39.41	United States ...	29.22	Russia in Asia (1913) ...	20.50
Norway ...	35.76	Argentine Rep. ...	28.45	Russia in Europe (1914) ...	17.38
Germany (1915) ...	35.06	Rumania ...	26.26	Australia ...	16.61
Canada ...	34.76	Sweden (1914) ...	25.99		
Austria (1913) ...	31.35	Algeria (1915) ...	24.78		

10. **Price of Oats.**—The average wholesale prices of oats in the markets of the several capitals for the year 1916 are given in the following table:—

## AVERAGE WHOLESALE PRICE OF OATS PER BUSHEL, 1916.

Particulars.	Sydney.	Melbourne.	Brisbane.	Adelaide.	Perth.	Hobart.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Average price per bushel ...	2 9½	2 3	3 7½	1 9	2 5½	2 8

\* Year ended 30th June, 1917.

## § 6. Maize.

1. **States Growing Maize.**—The only States in which maize is at all extensively grown for grain are those of New South Wales and Queensland, the area so cropped in these two States during the season 1916-17 being 336,778 acres, or 93½ per cent. of the total for the Commonwealth. Of the balance, Victoria contributed 23,076 acres, South Australia 117 acres, Western Australia 51 acres, and the Northern Territory 45 acres. The climate of Tasmania prevents the growing of maize for grain in that State. In South Australia, prior to 1908, particulars concerning maize had not been specially asked for on the form used in the collection of agricultural statistics. In all the States, maize is grown to a greater or less extent as green forage, particularly in connection with the dairying industry.

2. **Area under Maize.**—The area devoted to the growing of maize for grain in each State, from 1875 onwards, is given in the following table, and the actual fluctuations from year to year are shewn more fully on the graph hereinafter.

The total area under maize in the Commonwealth exceeded 300,000 acres for the first time in the season 1890-1, and although it fluctuated somewhat during the succeeding seventeen years, it may be considered to have remained at about that figure. The greatest divergence during the period occurred in 1903-4, when a record total of 371,906 acres was harvested. For 1908-9 and the two following seasons a continuous increase in the area devoted to maize was in evidence, and the total of 414,914 acres for 1910-11 is the highest ever attained. The unfavourable weather conditions during 1911-12 resulted in the acreage under maize for that season being reduced by 74,849 acres as compared with the preceding season. Since then the area devoted to this crop has fluctuated slightly from year to year, that for 1916-17 being third highest on record.

## AREA UNDER MAIZE, 1875-6 to 1916-17.

Season.	N.S.W.	Victoria.	Queensland.	South Aust.	W. Aust.	N.T.	Fed. Terr.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1875-6	117,582	2,346	38,711	...	60	...	...	158,699
1880-1	127,196	1,769	44,109	...	32	...	...	173,106
1885-6	132,709	4,530	71,741	...	120	...	...	209,100
1890-1	191,152	10,357	99,400	...	81	...	...	300,990
1895-6	211,104	7,186	100,481	...	23	...	...	318,794
1900-1	206,051	9,389	127,974	...	91	...	...	343,505
1905-6	189,353	11,785	113,720	...	43	...	...	314,901
1910-11	213,217	20,151	180,862	*619	46	19	...	414,914
1911-12	167,712	18,223	153,916	97	29	19	69	340,065
1912-13	176,415	19,986	117,993	176	25	35	56	314,686
1913-14	156,793	17,962	156,775	239	38	45	27	331,879
1914-15	143,663	19,433	176,372	189	73	51	...	339,781
1915-16	154,119	22,258	146,474	702	28	45	11	323,637
1916-17	155,373	23,076	181,405	117	51	45	5	360,072

\* Particulars for years prior to 1907-8 not available.

3. **Total Yield.**—The average yield per acre of this cereal for the season 1916-17, though an increase over that for the previous season, was considerably below that obtaining for some of the previous years, being 2.94 bushels under the decennial average. The 1910-11 crop was a record one, and exceeded 13,000,000 bushels. The average annual production of maize during the last decade was 9,085,329 bushels. Particulars concerning the yield from 1875 onwards are given hereunder:—

## MAIZE CROP, 1875-6 to 1916-17.

Season.	N.S.W.	Victoria.	Queensland.	S. Aust.	W. Aust.	N.T.	Fed. Terr.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	B'shls.	B'shls.	Bushels.
1875-6	3,410,517	37,177	1,006,486	...	1,200	...	...	4,455,380
1880-1	4,518,897	49,299	1,409,607	...	896	...	...	5,978,699
1885-6	4,336,163	181,240	1,574,294	...	1,417	...	...	6,093,114
1890-1	5,713,205	574,083	2,373,803	...	1,526	...	...	8,662,617
1895-6	5,687,030	351,891	2,391,378	...	600	...	...	8,430,899
1900-1	6,292,745	604,180	2,456,647	...	1,399	...	...	9,354,971
1905-6	5,539,750	641,216	2,164,674	...	428	...	...	8,346,068
1910-11	7,594,130	982,103	4,460,306	*6,375	718	449	...	13,044,081
1911-12	4,506,547	792,660	3,637,562	1,490	401	400	795	8,939,855
1912-13	5,111,056	715,299	2,524,371	2,628	470	1,400	934	8,356,158
1913-14	4,452,989	800,529	3,915,876	2,336	421	1,350	320	9,173,321
1914-15	3,174,825	1,018,419	4,260,673	170	999	475	...	8,455,561
1915-16	3,773,405	999,886	2,003,463	15,837	273	450	195	6,793,509
1916-17	4,333,430	1,172,330	3,018,934	993	949	450	50	8,527,136

\* Particulars for years prior to 1907-8 not available.

4. **Average Yield.**—In the following table particulars are given of the average yield per acre of the maize crops of the several States for the seasons 1901-2 and 1912-13 to 1916-17, and also for the decennium 1907-17:—

## AVERAGE YIELD OF MAIZE PER ACRE, 1901-2 and 1912-13 to 1916-17.

Season.	N.S.W.	Victoria.	Q'sland.	S. Aust.	W. Aust.	N.T.	Fed. Terr.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	B'shls.	Bushels.
1901-2	22.98	61.42	21.96	*	10.16	...	...	23.86
1912-13	28.93	35.79	21.39	14.93	18.80	40.00	16.68	26.53
1913-14	28.40	44.57	24.97	9.77	11.08	30.00	11.85	27.64
1914-15	22.10	52.41	24.16	0.90	13.68	9.31	...	24.89
1915-16	24.48	44.92	13.68	22.56	9.75	10.00	17.73	20.99
1916-17	27.89	50.80	16.64	8.49	18.61	10.00	10.00	23.68
Average for 10 Seasons	28.92	47.55	21.45	14.19	13.62	†19.20	‡13.65	26.62
1907-17								

\* Particulars not available. † Average for 7 seasons. ‡ Average for 5 seasons.

The extraordinarily high average yield obtained in Victoria is due, in large measure, to the fact that the area under maize in that State is comparatively small and is situated in districts that are peculiarly suited to the production of this grain. The average yield in New South Wales is appreciably higher than that obtained in Queensland.

5. **Value of Maize Crop.**—The value of the Commonwealth maize crop for the season 1916-17 has been estimated at £1,662,678, made up as follows:—

**VALUE OF MAIZE CROP, 1916-17.**

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	N.T.	Federal Terr.	C'wealth.
	£	£	£	£	£	£	£	£
Aggregate value	812,520	195,338	654,102	228	300	180	10	1,662,678
Value per acre	£5/4/7	£8/9/4	£3/12/1	£1/19/0	£5/17/9	£4/0/0	£2/0/0	£4/12/4

6. **Relation to Population.**—During the past ten seasons the Commonwealth production of maize has ranged between 1.4 bushels per head of population in 1915-16 and 3 bushels per head in 1910-11. The production in Queensland, the State in which the maize yield per head of population is highest, ranged during the same period between 3 bushels per head in 1915-16 and 7½ bushels per head in 1910-11. Details for the several States for the seasons 1901-2 and 1912-13 to 1916-17 are as follow:—

**MAIZE PRODUCTION PER 1000 OF POPULATION, 1901-2 and 1912-13 to 1916-17.**

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	N. T.	Federal Terr.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1901-2	2,795	509	5,070	*	27	...	...	1,839
1912-13	2,875	518	3,967	6	2	403	481	1,765
1913-14	2,431	567	5,931	5	1	368	161	1,883
1914-15	1,705	712	6,216	...	3	120	...	1,711
1915-16	2,017	705	2,952	36	1	99	107	1,377
1916-17	2,332	835	4,509	2	3	94	32	1,749

\* Particulars not available.

7. **Australian and Foreign Maize Production.**—The following table gives the production of maize in Australia and in the leading maize-producing countries of the world. The figures shew that of the total production the United States of America was responsible for over 72 per cent.

**PRODUCTION OF MAIZE IN VARIOUS COUNTRIES, 1916.**

Country.	Production of Maize.	Country.	Production of Maize.
	Bushels.		Bushels.
United States ...	2,504,193,825	Union of South Africa ...	30,214,259
Hungary (1915) ...	175,025,170	Spain (1915) ...	28,205,662
Argentine Republic ...	156,202,330	Philippine Islands (1915)...	14,301,558
Rumania (1915) ...	83,767,793	France (1915) ...	13,571,600
India (British) (1915) ...	79,684,680	Serbia (1915) ...	11,632,800
Italy ...	76,326,678	Uruguay (1915) ...	11,033,711
Russia in Europe ...	69,786,137	Russia in Asia (1913) ...	10,765,860
Mexico (1915) ...	58,164,000	Portugal (1915) ...	8,991,185
Austria (1915) ...	40,714,800	<b>Australia</b> ...	<b>8,527,136</b>
Egypt (1915) ...	38,585,028	Canada ...	6,079,107
Bulgaria (1915) ...	33,929,000		

8. **Comparison of Yields.**—The average yield per acre of maize in the Commonwealth during 1916 was 23.68 bushels, and may be regarded as highly satisfactory when compared with that of other maize-producing countries. Canada, Hungary, and Spain

are the only countries shewing a higher average. The remaining countries shewn in the following table had average yields per acre ranging from 10.09 to 23.63 bushels.

#### AVERAGE YIELD OF MAIZE PER ACRE IN VARIOUS COUNTRIES, 1916.

Country.	Average yield per acre.	Country.	Average yield per acre.
	Bushels.		Bushels.
Canada ... ..	35.14	Austria (1913) ... ..	18.61
Hungary (1915) ... ..	28.26	France (1915) ... ..	17.72
Spain (1915) ... ..	24.48	Rumania (1915) ... ..	16.09
Australia* ... ..	23.68	Serbia (1913) ... ..	15.85
United States of America ... ..	23.63	Argentine Republic ... ..	15.73
Egypt (1915) ... ..	20.23	India (1915) ... ..	13.12
Italy ... ..	19.93	Philippine Islands (1915) ... ..	13.06
Bulgaria (1914) ... ..	19.07	Uruguay (1915) ... ..	12.95
Russia in Europe ... ..	19.04	Russia in Asia (1913) ... ..	10.09

\* Average yield for 10 years, 26.63 bushels.

9. **Oversea Imports and Exports.**—Except in the years 1902, 1903, 1912, 1914-15 and 1915-16, when many of the maize crops failed, the Commonwealth oversea trade in maize has been practically insignificant. In the first of the years mentioned, nearly two million, and in the latter year nearly three and a-half million bushels were imported. In 1908 and 1909 also, owing to the small harvests of the seasons 1907-8 and 1908-9, the imports of maize were largely in excess of the exports. Details of imports and exports for 1901 and the past five years are as follows:—

#### COMMONWEALTH IMPORTS AND EXPORTS OF MAIZE, 1901 and 1912 to 1916-17.

Year.	Imports.		Exports.		Net Imports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Bushels.	£	Bushels.	£	Bushels.	£
1901 ... ..	188,423	24,764	533	75	187,890	24,689
1912 ... ..	1,133,755	218,233	37,968	8,402	1,095,787	209,831
1913 ... ..	273,123	53,387	15,261	3,349	257,862	50,038
1914-15 ... ..	1,457,660	282,461	12,266	2,873	1,445,394	279,588
1915-16 ... ..	3,432,571	712,650	4,237	1,088	3,428,334	711,562
1916-17 ... ..	41,952	8,162	50,296	11,894	—8,344	—8,732

Note. — signifies net exports

The principal countries to which maize has been exported from the Commonwealth are New Zealand and China, while the principal countries from which importations have taken place are the United States, the Pacific Islands, and South Africa.

10. **Prepared Maize.**—A moderate quantity of corn-flour is imported annually into the Commonwealth, the principal countries of supply being the United Kingdom and the United States. During the year 1916-17 these importations amounted to 242,134 lbs., and represented a value of £2,212.

11. **Price of Maize.**—The average wholesale price of maize in the Sydney market is given in the following table for each of the years 1907 to 1916:—

#### AVERAGE PRICE OF MAIZE PER BUSHEL, 1907 to 1916.

Particulars.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	*	*	*
Average price per bushel	3 2	4 7	4 2	2 11	3 0	4 8	4 1	4 6	5 2	3 8

\* For year ended 30th June of year following.

## § 7. Barley.

1. **Area under Barley.**—The area devoted to barley in the Commonwealth has fluctuated very considerably, though with a tendency to increase during the past few years. Taking a series of years, the principal barley-growing State is Victoria, but for the past four seasons South Australia has attained the lead in regard to acreage, and for 1916-17 accounted for 45 per cent. of the Commonwealth area devoted to this crop; Victoria was next in importance with a percentage of 40½; the remaining 14½ per cent. being represented by Queensland, Western Australia, New South Wales, and Tasmania in the order named. The figures here given relate to the areas harvested for grain; only small areas are cropped for hay, while more considerable quantities are cut for green forage. These, however, are not included in this sub-section. The area under barley for grain in the several States from 1875 onwards is shewn in the following table:—

**COMMONWEALTH AREA UNDER BARLEY, 1875-6 to 1916-17.**

Season.	N.S.W.	Victoria.	Q'land.	Sth. Aust.	W. Aust.	Tasmania.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1875-6	4,817	31,568	613	13,969	5,014	5,939	61,920
1880-1	8,056	68,630	1,499	13,074	6,363	8,297	105,919
1885-6	5,298	74,112	406	16,493	6,178	6,833	109,320
1890-1	4,937	87,751	584	14,472	5,322	4,376	117,442
1895-6	7,590	78,438	721	14,184	1,932	6,178	109,043
1900-1	9,435	58,853	7,533	15,352	2,536	4,502	98,211
1905-6	9,519	40,938	5,201	26,250	3,665	5,372	90,945
1910-11	7,082	52,687	5,578	34,473	3,369	5,235	108,424
1911-12	10,803	53,541	1,634	40,743	3,664	6,081	116,466
1912-13	16,909	71,631	9,447	68,964	5,626	8,802	*181,387
1913-14	20,601	83,351	8,826	90,552	11,502	7,723	*222,564
1914-15	4,861	62,492	7,166	66,315	6,986	5,836	153,656
1915-16	6,369	61,400	1,367	84,900	10,069	5,409	169,514
1916-17	5,195	93,015	12,674	103,627	11,105	4,637	230,253

\* Including 1 acre Northern and 7 acres Federal Territory in 1912-13, and 9 acres Federal Territory 1913-14.

2. **Total Yield.**—The total production of barley in the Commonwealth for the season 1916-17 amounted to 4,080,492 bushels, giving an average yield of 17.72 bushels per acre as compared with 17.90 for the decennium 1907-17. Particulars concerning the yields of the several States from 1875 onwards are as follows:—

**COMMONWEALTH BARLEY CROP, 1875-6 to 1916-17.**

Season.	N.S.W.	Victoria.	Q'land.	Sth. Aust.	W. Aust.	Tasmania.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1875-6	98,576	700,665	12,260	197,315	70,196	165,357	1,244,369
1880-1	163,395	1,068,830	31,433	151,886	89,082	169,156	1,673,782
1885-6	85,606	1,302,854	9,826	218,334	89,581	176,466	1,882,667
1890-1	81,388	1,571,599	12,673	175,583	85,451	99,842	2,026,531
1895-6	96,119	715,592	7,756	140,391	18,691	138,833	1,117,382
1900-1	114,228	1,215,478	127,144	211,102	29,189	116,911	1,814,052
1905-6	111,266	1,062,139	61,816	505,916	49,497	106,042	1,896,676
1910-11	82,005	1,340,387	83,621	544,471	33,566	142,318	2,226,368
1911-12	129,008	1,024,584	15,369	702,855	37,011	148,009	2,056,836
1912-13	289,562	1,744,527	146,847	1,318,734	93,418	265,908	*3,859,116
1913-14	303,297	1,812,890	115,975	1,332,714	167,915	187,484	*3,920,425
1914-15	46,500	600,599	105,613	447,310	24,090	104,798	1,328,910
1915-16	114,846	1,734,511	8,130	1,697,670	130,870	115,523	3,801,550
1916-17	73,370	1,799,784	250,167	1,734,420	134,055	88,696	4,080,492

\* Including 120 bushels, Federal Territory, 1912-13, 150 bushels 1913-14.

3. **Malting and other Barley.**—In recent years the statistics of all the States have distinguished between "malting" and "other" barley. Particulars for 1916-17 season are as follows:—

**MALTING AND OTHER BARLEY, 1916-17.**

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W.Aust.	Tas.	N.T.	F.T.	C'wealth.
	Acres	Acres	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Malting barley	2,874	43,131	8,578	77,984	5,157	4,122	...	...	141,846
Other barley	2,321	49,884	4,096	25,643	5,948	515	...	...	88,407
Total ...	5,195	93,015	12,674	103,627	11,105	4,637	...	...	230,253
	Bushels.	Bushels.	Bushels	Bushels.	Bushels.	Bushels	Bus.	Bus.	Bushels.
Malting barley	40,310	806,280	173,210	1,340,302	66,143	78,873	...	...	2,505,118
Other barley	33,060	993,504	76,957	394,118	67,912	9,823	...	...	1,575,374
Total ...	73,370	1,799,784	250,167	1,734,420	134,055	88,696	...	...	4,080,492

Taking the Commonwealth as a whole, about 62 per cent. of the area devoted to this grain in 1916-17 was cropped for malting barley. The proportion varies considerably in the several States.

4. **Total Acreage and Yield.**—The following table sets out the total acreage and yield of malting and other barley in the Commonwealth as a whole during the past ten seasons:—

**AREA AND YIELD, COMMONWEALTH, MALTING AND OTHER BARLEY,  
1907-8 to 1916-17.**

Season.	Acres.			Bushels.			Average Bushels per Acre.		
	Malting	Other.	Total.	Malting.	Other.	Total.	Malting	Other.	Total.
1907-8 ...	89,157	41,942	131,099	1,410,404	581,348	1,991,652	15.82	13.86	15.19
1908-9 ...	95,644	44,599	140,243	1,984,841	889,363	2,874,204	20.75	19.94	20.49
1909-10 ...	91,814	51,199	143,013	1,536,032	900,352	2,436,384	16.73	17.59	17.04
1910-11 ...	67,408	41,016	108,424	1,369,464	856,904	2,226,368	20.32	20.89	20.53
1911-12 ...	80,919	35,547	116,466	1,459,468	597,348	2,056,816	18.04	16.80	17.66
1912-13 ...	135,880	45,507	181,387	2,920,857	938,259	3,859,116	21.60	20.62	21.28
1913-14 ...	151,944	70,620	222,564	2,625,415	1,295,010	3,920,425	17.28	18.34	17.61
1914-15 ...	101,930	51,726	153,656	995,413	333,497	1,328,910	9.77	6.45	8.65
1915-16 ...	106,217	63,297	169,514	2,365,126	1,436,424	3,801,550	22.37	22.69	22.43
1916-17 ...	141,846	88,407	230,253	2,505,118	1,575,374	4,080,492	17.66	17.82	17.72
Average 10 seasons									
1907-17 ...	106,276	53,386	159,662	1,917,216	940,378	2,857,594	18.04	17.61	17.90

For the past ten seasons the area and production of malting barley have represented approximately twice the corresponding figures for other barley. The average yield per acre for five of the seasons was in favour of malting, while for the remaining five seasons the yield per acre for other barley shewed the more satisfactory results. The average yields for the past ten seasons for malting and for other barley were 18.04 and 17.61 bushels per acre respectively.



5. **Value of Barley Crop.**—The estimated value of the total barley crop of the Commonwealth for the seasons 1913-14 to 1916-17, was £564,871; £343,423; £655,917; and £734,154 in the order named. The extent to which the several States have contributed to the latter total is shewn in the following table :—

VALUE OF BARLEY CROP,\* 1916-17.

Particulars.	N.S.W.	Victoria.	Q'land.	Sth. Aust.	W. Aust.	Tas.	Fed. Terr.	C'wealth.
Total value ...	£14,710	£324,500	£54,203	£299,281	£23,721	£17,739	...	£734,154
Value per acre	£2/16/8	£3/9/9	£4/5/6	£2/17/9	£2/2/9	£3/16/6	...	£3/3/9

\* Exclusive of the value of straw.

6. **Relation to Population.**—During the seasons embraced in the following table, the quantity of barley produced in the Commonwealth has averaged slightly under three-quarters of a bushel per head of population. For the season 1916-17 the production ranged from four bushels per head in South Australia to two pounds per head in New South Wales. Details for the season 1901-2 and for the last quinquennium are as follows:—

BARLEY PRODUCTION PER 1000 OF POPULATION, 1901-2 and 1912-13 to 1916-17.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1901-2 ...	75	573	547	677	179	956	397
1912-13 ...	163	1,264	231	3,066	305	1,348	815
1913-14 ...	166	1,284	176	3,029	524	930	805
1914-15 ...	25	420	156	1,012	75	520	269
1915-16 ...	61	1,222	12	3,872	412	575	771
1916-17 ...	39	1,287	374	4,008	434	444	837

7. **Commonwealth Imports and Exports.**—The Commonwealth oversea trade in barley is not extensive, and in most years the imports exceed the exports. In 1902, 1903, 1912, and 1914-15 somewhat extensive importations of barley from the United States and New Zealand took place, owing to the shortage in local supply resulting from the severe droughts of those periods. In 1904, the excellent crop of the season furnished the material for a heavy exportation to Japan, the total exported thither during that year being 551,821 bushels. In 1909 also there was a fairly heavy export, mainly to the United Kingdom. Particulars of the Commonwealth oversea imports and exports of barley for the years 1901 and 1912 to 1916-17 are contained in the following table :—

COMMONWEALTH IMPORTS AND EXPORTS OF BARLEY, 1901 and 1912 to 1916-17.

Year.	Imports.		Exports.		Net Exports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Bushels.	£	Bushels.	£	Bushels.	£
1901 ...	55,508	7,208	17,474	1,942	— 38,034	— 5,266
1912 ...	546,177	109,466	1,426	322	—544,751	—109,144
1913 ...	22,810	6,026	7,414	1,069	— 15,396	— 4,957
1914-15 ...	290,226	66,402	103,522	15,245	—186,704	— 51,157
1915-16 ...	147,144	27,387	185,122	36,661	37,978	9,274
1916-17 ...	58	9	256,804	52,891	256,746	52,882

Note. — signifies net imports.

Only in five years during the period embraced in the above table have the Commonwealth exports of barley exceeded in value the imports, viz., in 1904, 1905, 1909, 1915-16, and 1916-17. During the last ten years the total importations amounted to

1,995,383 bushels, valued at £449,994, and the total exports to 831,298 bushels, valued at £147,196, giving a net importation of 1,164,085 bushels with a value of £302,798.

In addition to the above, which relates to the unprepared grain, there is a small importation into the Commonwealth of pearl and Scotch barley, mainly from the United Kingdom and Japan. The total imported during 1916-17 amounted to only 7,345 lbs. weight, with a value of £91.

From time to time a considerable export trade in Australian pearl and Scotch barley has been carried on, mainly with the United Kingdom and New Zealand, the total exports for 1909 reaching 1,155,346 lbs., valued at £3,573, and for 1910, 119,337 lbs., valued at £510. During 1911 and 1912, the exports were only 588 lbs., valued at £8, and 712 lbs., valued at £10, respectively; in 1913, they increased to 62,992 lbs., with a value of £406, while during 1914-15 only 7,314 lbs., valued at £52, were exported. During 1915-16 and 1916-17, however, the exports amounted to 83,982 lbs. and 447,290 lbs. respectively, valued at £656 and £3,090, the bulk of which in the former year went to New Zealand and in the latter to South Africa.

**8. Commonwealth Imports and Exports of Malt.**—In normal times the importations of malt into the Commonwealth are fairly extensive, the supply being obtained principally from the United Kingdom. Details of imports and exports for the years 1901 and 1912 to 1916-17 are given hereunder :—

**COMMONWEALTH IMPORTS AND EXPORTS OF MALT, 1901 and 1912 to 1916-17.**

Year.	Imports.		Exports.		Net Imports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Bushels.	£	Bushels.	£	Bushels.	£
1901 ... ..	516,135	140,615	...	...	516,135	140,615
1912 ... ..	128,800	45,226	117	48	128,683	45,178
1913 ... ..	85,002	31,071	120	55	84,882	31,016
1914-15 ... ..	68,215	23,743	165	87	68,050	23,656
1915-16 ... ..	23,910	9,596	30	13	23,880	9,583
1916-17 ... ..	7,452	4,196	73	35	7,379	4,161

**9. Comparison with other Countries.**—In comparison with the barley production of other countries of the world, that of Australia appears very small indeed. Particulars for some of the leading countries for the year 1916 are as follows, the Australian figures being added for the sake of comparison :—

**PRODUCTION OF BARLEY IN VARIOUS COUNTRIES, 1916.**

Country.	Production of Barley.	Country.	Production of Barley.
	Bushels.		Bushels.
Russia in Europe (1914)	371,834,697	Denmark ... ..	21,623,436
United States ... ..	175,390,634	Russia in Asia (1914)	18,855,799
British India (1915) ...	138,474,912	Sweden (1915) ... ..	13,915,889
Germany (1915) ... ..	110,586,244	Egypt (1914) ... ..	10,636,000
Japan ... ..	96,767,447	Italy ... ..	9,794,818
Spain ... ..	81,790,217	Tunis ... ..	6,678,197
Austria (1915) ... ..	61,012,097	<b>Australia ... ..</b>	<b>4,080,492</b>
Hungary (1915) ... ..	54,466,708	Belgium (1915) ... ..	3,877,600
United Kingdom ... ..	53,253,020	Chili (1915) ... ..	3,635,250
Canada ... ..	40,053,669	Norway ... ..	2,933,404
Algeria (1915) ... ..	38,646,100	Netherlands ... ..	2,422,531
France ... ..	36,621,993	Serbia (1915) ... ..	2,181,150
Rumania ... ..	29,118,837	New Zealand ... ..	738,050

10. **Average Yield of Barley per Acre in various Countries.**—The following table shows the average yield of barley per acre in various countries of the world, ranging from over 40 bushels in the Netherlands to 12½ bushels in European Russia:—

**AVERAGE YIELD OF BARLEY PER ACRE IN VARIOUS COUNTRIES, 1916.**

Country.	Average yield per Acre.	Country.	Average yield per Acre.
	Bushels.		Bushels.
Netherlands ...	40.38	Spain ...	20.27
Denmark ...	34.16	Rumania ...	20.03
United Kingdom ...	32.24	Hungary (1915) ...	19.25
Japan ...	31.12	India (1915) ...	17.85
Canada ...	30.14	Australia ...	17.72
Norway ...	29.93	Russia in Asia ...	16.88
Germany (1915) ...	27.63	Italy ...	16.43
New Zealand ...	24.90	Chile (1915) ...	16.23
France ...	23.67	Algeria (1915) ...	14.30
United States ...	22.86	Russia in Europe (1914) ...	12.50

11. **Average Yield.**—The average yield per acre of barley varies considerably in the different States, being as a rule highest in Tasmania and Victoria, and lowest in Western Australia. Details for each State for 1901-2 and the past five seasons, and also for the decennium 1907-17, are given in the following table:—

**AVERAGE YIELD PER ACRE OF BARLEY, 1901-2 and 1912-13 to 1916-17.**

Season.	N.S.W.	Victoria.	Q'land.	Sth. Aust.	West Aust.	Tas.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1901-2 ...	17.16	21.40	23.53	15.68	13.01	27.44	20.40
1912-13 ...	17.12	24.35	15.54	19.12	16.60	30.21	21.28
1913-14 ...	14.72	21.75	13.14	14.72	14.60	24.28	17.61
1914-15 ...	9.57	9.61	14.74	6.75	3.45	17.96	8.65
1915-16 ...	18.03	28.25	5.95	20.00	13.00	21.36	22.43
1916-17 ...	14.12	19.35	19.74	16.74	12.07	19.13	17.72
Average for 10 Seasons 1907-17 }	14.34	20.55	15.13	16.07	11.45	24.29	17.90

12. **Price of Barley.**—The average prices of barley in the Melbourne market during each of the past ten years are given in the following table:—

**AVERAGE PRICE OF BARLEY PER BUSHEL, 1907 to 1916.**

Particulars.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Malting barley	4 8	4 10	3 10	4 1	4 10½	5 11½	3 11½	3 9½	5 4½	4 4½
Cape barley ...	2 8	3 8	2 7	2 5	2 8	4 11	3 0	2 9½	4 4½	3 1½

**§ 8. Other Grain and Pulse Crops.**

In addition to the grain crops already specified, the only grain and pulse crops at all extensively grown in the Commonwealth are beans, peas and rye. The total area under the two former crops for the season 1916-17 was 32,393 acres, giving a yield of 586,342 bushels, or an average of 17.39 bushels per acre, being virtually the same as the average yield for the decennium ended 1916-17, which was 17.40 bushels per acre. The States in which the greatest area is devoted to beans and peas are Tasmania, Victoria and South Australia. The total area under rye in the Commonwealth during the season

1916-17 was 9,055 acres, yielding 97,100 bushels, and giving an average of 10.72, this being below the average for the past ten seasons, which is 11.61 bushels per acre. Over 38 per cent. of the rye grown during the season was produced in Victoria, 25 per cent. in New South Wales, and 26½ per cent. in South Australia. In addition to these grain crops a small area of rice has for some years been cultivated in Queensland and the Northern Territory. The results obtained, however, have not up to the present been very satisfactory. Should rice-growing ever be seriously taken up in Australia, it is probable that large tracts of country in the northern parts of Western Australia and in the Northern Territory will be found well suited to its cultivation.

### § 9. Potatoes.

1. **Area.**—The principal potato-growing State of the Commonwealth as regards area is Victoria; Tasmania prior to 1909-10 usually ranking second, and New South Wales third. The relative positions of the two latter States were, however, reversed during the five seasons ended 1913-14, while the position was again reversed in the last three seasons ended 1916-17.

The area under potatoes in each State from 1890 onwards is given hereunder :—

#### COMMONWEALTH AREA UNDER POTATOES, 1890-1 to 1916-17.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Fed. Terr.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1890-1 ...	19,406	53,818	6,270	6,626	511	20,133	...	106,764
1895-6 ...	24,722	43,895	9,240	6,448	668	19,247	...	104,220
1900-1 ...	29,408	38,477	11,060	6,628	1,794	23,068	...	110,435
1905-6 ...	26,374	44,670	7,170	9,540	2,145	28,634	...	118,533
1910-11 ...	44,452	62,904	8,326	7,812	1,791	26,230	...	151,515
1911-12 ...	43,079	47,692	7,688	7,412	2,705	21,818	69	130,463
1912-13 ...	34,093	47,575	8,822	8,581	5,175	24,612	31	128,889
1913-14 ...	38,695	74,574	10,085	10,809	5,229	30,811	30	170,233
1914-15 ...	30,410	65,495	8,385	7,639	4,778	31,613	8	148,328
1915-16 ...	19,582	56,910	5,796	4,241	4,866	29,491	7	120,993
1916-17 ...	22,437	73,618	8,908	4,737	5,838	34,345	12	149,895

2. **Total Yield.**—For the season 1916-17, Victoria's production represented about 52½ per cent. of the total for the Commonwealth, Tasmania and New South Wales coming next in order with 19 and 12½ per cent. respectively. The total Commonwealth production for the season 1906-7, viz., 507,153 tons, was the highest ever attained, the yield which most nearly approached it being 449,383 tons in 1903-4. Details as to production in the several States during the period from 1890 onwards are as follows :—

#### COMMONWEALTH PRODUCTION OF POTATOES, 1890-1 to 1916-17.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Fed. Terr.	C'wealth.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1890-1 ...	52,791	204,155	13,112	23,963	1,900	73,158	...	369,079
1895-6 ...	56,179	117,238	19,027	18,412	2,290	81,423	...	294,569
1900-1 ...	63,253	123,126	20,014	14,566	4,836	93,862	...	319,657
1905-6 ...	50,386	115,352	11,308	20,328	6,297	64,606	...	268,277
1910-11 ...	121,033	163,312	15,632	23,920	5,864	70,090	...	399,851
1911-12 ...	75,040	119,092	13,087	22,668	9,312	62,164	126	301,489
1912-13 ...	91,600	191,112	16,386	33,078	13,558	72,565	42	418,341
1913-14 ...	106,805	176,602	16,548	32,950	17,803	80,389	44	431,141
1914-15 ...	40,694	189,225	16,014	18,035	14,724	78,907	15	357,614
1915-16 ...	44,420	173,821	7,439	12,991	14,118	79,890	25	332,704
1916-17 ...	45,296	187,992	19,457	20,343	16,841	67,038	35	357,002

3. **Average Yield per Acre.**—The suitability of the soil, climate, and general conditions for potato growing is evidenced by the satisfactory yields per acre which are generally obtained in Australia, except in the most northerly portions, the average yield during the past ten seasons being 2.66 tons per acre. The lowest average yield is that obtained in Queensland with an average of 1.79 tons for the same period.

Particulars for each State for the seasons 1901-2 and 1912-13 to 1916-17, and also for the past decennium, are given hereunder:—

**AVERAGE YIELD OF POTATOES PER ACRE, 1901-2 and 1912-13 to 1916-17.**

Season.	N.S.W.	Victoria.	Q'land.	S.Aust.	W. Aust.	Tas.	Federal Terr.	C'wealth.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1901-2	1.50	3.13	2.25	2.41	3.14	4.51	...	2.94
1912-13	2.69	4.02	1.86	3.85	2.62	2.95	1.35	3.25
1913-14	2.76	2.37	1.64	3.05	3.40	2.61	1.47	2.53
1914-15	1.34	2.89	1.91	2.36	3.08	2.50	1.88	2.41
1915-16	2.27	3.05	1.28	2.99	2.90	2.71	3.57	2.75
1916-17	2.02	2.55	2.18	4.29	2.88	1.95	2.92	2.38
Average for 10 Seasons 1907-17	2.30	2.81	1.79	2.93	3.07	2.90	1.83	2.66

4. **Value of Potato Crop.**—The estimated value of the potato crop of each State for the season 1916-17 is furnished in the following table, together with the value per acre:—

**VALUE OF POTATO CROP, 1916-17.**

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Federal Terr.	C'wealth.
Tot. value	£242,050	£657,972	£218,891	£86,033	£98,879	£382,117	£190	£1,686,132
Value per acre ...	£10/15/9	£8/18/9	£24/11/6	£18/3/3	£16/18/9	£11/2/8	£15/16/8	£11/5/0

5. **Relation to Population.**—The average production of potatoes per annum per head of the population of the Commonwealth for the past ten seasons has been approximately 184 lbs. In Tasmania, where this crop is of far greater importance in relation to population than is the case in any other State, the production per head in 1906-7 was nearly a ton, while for the past five seasons it has averaged about 7½ cwt. Details for the seasons 1901-2 and 1912-13 to 1916-17 are as follows:—

**POTATO PRODUCTION PER 1000 OF POPULATION, 1901-2 and 1912-13 to 1916-17.**

Season.	N.S.W.	Victoria.	Q'land.	Sth. Aust.	W. Aust.	Tas.	Federal Terr.	C'wealth.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1901-2 ...	28	104	44	42	30	655	...	84
1912-13 ...	52	138	26	77	44	368	22	88
1913-14 ...	59	125	25	75	56	398	22	88
1914-15 ...	22	132	24	41	46	392	8	72
1915-16 ...	24	122	11	30	44	397	14	67
1916-17 ...	24	134	29	47	55	335	16	73

6. **Commonwealth Imports and Exports.**—Under normal conditions there is usually a fairly large export trade in potatoes carried on by the Commonwealth, principally with New Zealand, the Pacific Islands, and the Philippine Islands. Thus, during 1907, out of a total export of 17,842 tons, 13,346 tons went to New Zealand, 2,102 tons to the Pacific

Islands, and 2,112 tons to the Philippine Islands. On the other hand, when the droughts of 1902, 1903, 1912 and 1914, had brought about a shortage in some of the States, importations from New Zealand took place to the extent of 11,471 tons and 2,279 tons in the first two years, 17,732 tons in 1912, and 16,342 tons in 1915-16. The quantities and values of the Commonwealth oversea imports and exports of potatoes for 1901 and for the past five years are shewn in the following table:—

**COMMONWEALTH IMPORTS AND EXPORTS OF POTATOES, 1901 and 1912 to 1916-17.**

Year.	Imports.		Exports.		Net Exports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Tons.	£	Tons.	£	Tons.	£
1901 ...	17,655	86,067	6,028	45,485	— 11,627	— 40,582
1912 ...	18,151	163,249	1,619	15,331	— 16,532	— 147,918
1913 ...	996	5,537	1,689	12,012	— 693	— 6,475
1914-15 ...	2,708	15,406	1,803	12,690	— 905	— 2,716
1915-16 ...	17,596	149,488	1,208	13,110	— 16,388	— 136,378
1916-17 ...	91	951	4,492	37,579	— 4,401	— 36,628

Note. — signifies net imports.

**7. Comparison with Other Countries.**—The following table furnishes a comparison of the potato crop of Australia for 1915 with those of some of the leading potato-producing countries of the world for the same year:—

**POTATO CROPS OF VARIOUS COUNTRIES, 1915.**

Country.	Yield.	Country.	Yield.
	Tons.		Tons.
Germany ...	38,954,948	Spain (1914) ...	1,505,762
Russia in Europe (1914)	17,864,903	Canada ...	1,229,721
Austria (1913) ...	8,811,687	Italy ...	1,115,086
Poland (1913) ...	7,537,671	Russia in Asia (1914)	1,085,779
United States ...	7,065,948	Denmark ...	831,875
France ...	6,536,907	Switzerland ...	759,629
United Kingdom ...	5,529,504	Japan ...	492,584
Hungary (1914) ...	3,835,582	Norway ...	365,141
Netherlands ...	2,489,555	Australia ...	332,704
Belgium (1913) ...	2,310,255	New Zealand ...	133,642
Sweden ...	1,547,975	Luxemburg (1914) ...	103,871

**AVERAGE YIELD OF POTATOES PER ACRE IN VARIOUS COUNTRIES, 1915.**

Country.	Average Yield per Acre.	Country.	Average Yield per Acre.
	Tons.		Tons.
Belgium (1913) ...	5.85	Canada ...	2.57
Netherlands ...	5.68	Japan ...	2.54
New Zealand ...	5.11	Hungary (1914) ...	2.54
Denmark ...	5.07	Australia ...	2.38
Switzerland ...	4.78	Spain (1914) ...	2.19
United Kingdom ...	4.60	France ...	2.03
Germany ...	4.41	Russia in Europe (1914)	2.02
Sweden ...	4.05	Russia in Asia (1914)	1.96
Poland ...	2.83	United States ...	1.89
Austria (1913) ...	2.58	Italy ...	1.54

### § 10. Other Root and Tuber Crops.

1. **Nature and Extent.**—Root crops, other than potatoes, are not extensively grown in Australia, the total area devoted to them for the season 1916-17 being only 16,618 acres. The principal of these crops are onions, mangolds, turnips, and "sweet potatoes" (*Batatas edulis*). Of these, onions are most largely grown in Victoria, mangolds in Tasmania and Victoria, turnips in Tasmania, and sweet potatoes in Queensland. The total area under onions in the Commonwealth during the season 1916-17 was 7,059 acres, giving a yield of 32,019 tons, and averaging 4.5 tons per acre. The area devoted in 1916-17 to root crops other than potatoes and onions, viz., 9,559 acres, yielded 65,480 tons, and gave an average of 6.9 tons per acre. The areas and yields here given are exclusive of the production of "market gardens," a reference to which will be made later.

2. **Commonwealth Imports and Exports.**—The only root crop, other than potatoes, in which any considerable overseas trade is carried on by the Commonwealth is that of onions. During the year 1915-16 overseas imports of onions amounted to 926 tons, obtained principally from the United States and New Zealand, of which total 720 tons went to New South Wales and 124 tons to Queensland. For the same year the exports of onions totalled 3881 tons, the principal countries to which they were exported being New Caledonia and other Pacific Islands. During 1916-17 only 27 tons were imported and 7806 tons exported. Of the latter 4105 tons were shipped to New Zealand, 1497 tons to Canada, 620 to the United States, and 593 tons to the Philippine Islands.

### § 11. Hay.

1. **Nature and Extent.**—As already stated, the most important crop of the Commonwealth is that of wheat grown for grain. Next to this in importance is the hay crop, which for the five seasons ended 1916-17 averaged nearly 19 per cent. of the area under crop in the Commonwealth, and for 1916-17, 15.9 per cent. In most European countries the hay crop consists almost entirely of meadow and other grasses, whilst in Australia a very large proportion of the area under hay comprises cereal crops, mainly wheat and oats. A considerable quantity of lucerne hay is also made, particularly in New South Wales and Queensland. The area under hay of all kinds in the several States from 1860 onwards is given hereunder:—

AREA UNDER HAY, 1860-1 to 1916-17.

Season.	N.S.W.	Victoria.	Q'land.	Sth. Aust.	W. Aust.	Tas.	N. T.	Fed. Terr.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1860-1	46,584	90,921	276	55,818	6,626	31,837	...	...	232,062
1865-6	61,909	97,902	1,449	101,996	8,824	30,244	...	...	302,324
1870-1	65,404	163,181	3,671	140,316	17,173	33,612	...	...	423,357
1875-6	77,125	155,274	8,531	161,429	17,319	34,758	...	...	454,436
1880-1	131,153	249,656	12,022	272,567	19,563	31,615	...	...	716,576
1885-6	219,886	421,036	28,881	312,672	19,677	41,693	...	...	1,043,845
1890-1	175,242	413,052	31,106	345,150	23,183	45,381	...	...	1,033,114
1895-6	319,296	464,482	28,609	362,972	63,804	54,748	...	...	1,293,911
1900-1	466,236	502,105	42,497	341,330	104,254	61,541	...	...	1,517,963
1905-6	438,036	591,771	37,425	317,924	124,906	64,350	...	...	1,574,412
1910-11	638,577	832,669	98,558	440,177	175,432	72,992	...	...	2,258,405
1911-12	651,866	860,205	61,299	521,182	344,032	77,466	18	2,220	2,518,288
1912-13	944,725	1,203,728	87,643	647,069	231,690	99,839	10	2,337	3,217,041
1913-14	798,978	977,684	76,469	568,550	246,640	84,138	61	2,152	2,754,672
1914-15	783,107	895,755	79,327	445,832	332,037	89,598	120	2,837	2,628,613
1915-16	1,107,228	1,330,455	55,174	709,831	290,036	103,216	140	1,691	3,597,771
1916-17	857,533	897,186	112,964	483,040	240,726	79,274	140	999	2,671,862

It will be seen from this table that in all the States marked fluctuations occur in the area devoted to the hay crop from year to year. These fluctuations are due to various causes, the principal being the variations in the relative prices of grain and hay.

and the favourableness or otherwise of the season for a grain crop. Thus, crops originally sown for grain are frequently cut for hay owing to the improved price of that commodity, or owing to the fact that the outlook for the due development of the grain is not satisfactory. On the other hand, improved grain prices or the prospect of a heavy yield will frequently cause crops originally intended for hay to be left for grain. The area under hay in the Commonwealth for the season 1915-16 was the highest on record, and that for 1912-13 the next.

2. **Kinds of Hay.**—Particulars concerning the kind of crop cut for hay are furnished in the returns prepared by five of the States. In the case of Tasmania the bulk consists of oaten hay; full particulars, however, are not available for that State.

Details for the past five seasons are given in the following table:—

**KINDS OF HAY GROWN, 1912-13 to 1916-17.**

Kind of Hay Crop.				1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
				Acres.	Acres.	Acres.	Acres.	Acres.
<b>NEW SOUTH WALES—</b>								
Wheaten	...	...	...	703,509	533,890	568,982	878,881	633,438
Oaten	...	...	...	181,400	209,821	158,949	175,285	160,898
Barley	...	...	...	1,703	1,395	1,179	1,348	866
Lucerne	...	...	...	56,403	52,457	52,570	50,528	61,584
Other	...	...	...	1,710	1,415	1,427	1,186	747
Total	...	...	...	944,725	798,978	783,107	1,107,228	857,533
<b>VICTORIA—</b>								
Wheaten	...	...	...	386,370	220,560	192,562	333,449	195,532
Oaten	...	...	...	790,268	729,678	677,895	964,318	672,905
Lucerne, etc.	...	...	...	27,090	27,446	25,298	32,688	28,749
Total	...	...	...	1,203,728	977,684	895,755	1,330,455	897,186
<b>QUEENSLAND—</b>								
Wheaten	...	...	...	12,710	12,648	14,906	14,003	21,047
Oaten	...	...	...	19,539	16,020	12,573	6,377	30,041
Lucerne	...	...	...	50,814	44,270	47,785	32,288	55,928
Other	...	...	...	4,580	3,531	4,063	2,506	5,948
Total	...	...	...	87,643	76,469	79,327	55,174	112,964
<b>SOUTH AUSTRALIA—</b>								
Wheaten	...	...	...	492,980	411,101	318,586	476,423	323,633
Oaten	...	...	...	147,963	151,694	118,505	190,321	148,881
Lucerne	...	...	...	2,414	2,378	3,976	3,880	2,855
Other	...	...	...	3,712	3,377	4,765	39,707	7,671
Total	...	...	...	647,069	568,550	445,832	709,831	483,040
<b>WESTERN AUSTRALIA—</b>								
Wheaten	...	...	...	176,744	195,497	266,113	225,959	188,272
Oaten	...	...	...	52,904	49,801	64,037	62,622	51,255
Lucerne	...	...	...	205	264	328	258	230
Other	...	...	...	1,837	1,078	1,559	1,197	969
Total	...	...	...	231,690	246,640	332,037	290,036	240,726



It will be seen that wheat is the principal hay crop in New South Wales, South Australia, and Western Australia, oats in Victoria and Tasmania, and lucerne in Queensland.

3. **Total Yield.**—The Commonwealth hay crop for the season 1915-16 was the highest on record, and amounted to 5,633,988 tons. The second in importance was 3,955,311 tons for the season 1912-13, while the third was 3,507,589 tons for 1916-17. For many years past the State of Victoria has been the largest hay producer in the Commonwealth, and in the five seasons, 1912-13 to 1916-17 inclusive, accounted for 39 per cent. of the total production. The total yields of the several States from 1860 onwards are given hereunder:—

#### COMMONWEALTH HAY CROP, 1860-1 to 1916-17.

Season.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	N. T.	Fed. Ter.	Commonwealth.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1860-1	50,927	144,211	414	71,241	8,099	62,318	...	...	337,210
1865-6	54,230	96,101	2,173	88,731	7,901	34,751	...	...	283,887
1870-1	69,602	183,708	5,506	197,149	20,833	40,763	...	...	517,561
1875-6	88,968	206,613	12,796	194,794	17,319	49,217	...	...	569,707
1880-1	174,194	300,581	23,441	261,371	19,563	35,883	...	...	815,033
1885-6	191,371	442,118	30,670	307,855	19,677	51,872	...	...	1,043,563
1890-1	213,034	567,779	50,116	310,125	25,014	52,021	...	...	1,218,089
1895-6	229,671	390,861	50,881	225,462	53,758	62,345	...	...	1,012,978
1900-1	526,260	677,757	78,758	353,662	103,813	94,198	...	...	1,834,448
1905-6	459,182	864,177	56,829	435,546	139,380	90,077	...	...	2,045,191
1910-11	843,080	1,292,410	151,252	595,064	178,891	115,190	...	...	3,175,887
1911-12	727,054	1,032,288	94,553	605,239	299,695	107,684	40	1,420	2,867,973
1912-13	1,105,350	1,572,933	119,867	714,766	255,751	183,709	10	2,925	3,955,311
1913-14	952,489	1,350,374	103,935	571,616	278,585	112,958	81	2,558	3,372,596
1914-15	610,559	568,956	102,193	210,437	156,932	81,971	220	2,676	1,733,944
1915-16	1,570,941	2,342,094	53,858	1,100,127	395,172	168,449	350	2,997	5,633,988
1916-17	1,172,078	1,232,721	145,279	615,059	236,989	103,141	350	1,972	3,507,589

4. **Value of Hay Crop.**—The following table furnishes particulars concerning the total value and the value per acre of the hay crop of the several States of the Commonwealth for the season 1916-17:—

#### VALUE OF HAY CROP, 1916-17.

Particulars.	New South Wales.	Victoria.	Queensland.	South Aust.	Western Aust.	Tasmania.	N. T. 1915-16	Fed. Ter.	Commonwealth.
Total value ...	£3,833,280	£2,465,442	£730,951	£1,322,377	£1,067,999	£283,638	£2,500	£8,130	£9,714,317
Value per acre	£4/9/5	£2/15/0	£6/9/5	£2/14/9	£4/8/9	£3/11/7	£17/17/2	£8/2/9	£3/12/9

5. **Average Yield per Acre.**—The States of the Commonwealth in which the highest average yields per acre have been obtained during the last decennium are those of Tasmania and Queensland, these being also the States in which the smallest areas are devoted to this crop. For the same period the lowest yield for the Commonwealth as a whole was that of 13 cwt. per acre in 1914-15, the next lowest was in 1907-8 when the average yield was 19 cwt., while the highest was that of 31 cwt. in 1915-16. The average for the decennium was 25 cwt. Particulars for the several States for the seasons 1901-2 and 1912-13 to 1916-17, and the average for the last ten years, are given hereunder:—

## AVERAGE YIELD OF HAY PER ACRE, 1901-2 and 1912-13 to 1916-17.

Season.	N.S.W.	Vic.	Q'land.	S. Aus.	W. Aus.	Tas.	N. T.	Fed. Terr.	Com'-wealth.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1901-2 ...	1.07	1.34	1.94	0.94	0.97	1.78	...	...	1.20
1912-13 ...	1.17	1.31	1.36	1.10	1.10	1.84	1.00	1.25	1.23
1913-14 ...	1.19	1.38	1.36	1.01	1.13	1.34	1.33	1.19	1.22
1914-15 ...	0.78	0.64	1.29	0.47	0.47	0.91	1.83	0.94	0.66
1915-16 ...	1.42	1.76	0.98	1.55	1.36	1.63	2.50	1.77	1.57
1916-17 ...	1.37	1.37	1.29	1.27	0.98	1.30	2.50	1.97	1.34
Average for 10 seasons									
1907-17 ...	1.18	1.33	1.36	1.19	0.93	1.45	*2.15	*1.19	1.24

\* Average for 6 years.

6. **Relation to Population.**—During the past ten seasons the Commonwealth hay production per head of population has varied between 7 cwt. in 1914-15 and 22½ cwt. in 1915-16; averaging about 14 cwt. per head for the period. The State in which the hay production per head of population is highest is South Australia. Details for the seasons 1901-2 and 1912-13 to 1916-17 are given hereunder:—

## HAY PRODUCTION PER 1000 OF POPULATION, 1901-2 and 1912-13 to 1916-17.

Season.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N. T.	Fed. Terr.	C'wlth.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1901-2 ...	339	231	241	964	463	624	...	...	529
1912-13 ...	622	1,139	188	1,662	835	932	3	1,508	836
1913-14 ...	520	956	157	1,299	869	560	22	1,287	692
1914-15 ...	328	398	151	476	486	407	55	1,366	351
1915-16 ...	840	1,651	79	2,509	1,243	838	77	1,639	1,142
1916-17 ...	631	881	217	1,421	767	516	73	887	719

7. **Oversea Imports and Exports.**—Under normal conditions hay, whether whole or in the form of chaff, is somewhat bulky for oversea trade, and consequently does not in such circumstances figure largely amongst the imports and exports of the Commonwealth. In 1901 and 1902, however, the exceptional demand which was created by the South African war brought about a fairly large export of hay and chaff to Natal and Cape Colony. These colonies also took a considerable quantity of Australian compressed fodder. During the year 1904, when the war between Japan and Russia was being carried on, the exports of compressed fodder to Hong Kong were valued at £42,759 and those to Japan at £23,608. The total value of the hay and chaff exported during 1901 was £406,455, as compared with only £15,107 in 1916-17, while the exports of compressed and other fodder, which amounted in value to £142,472 in 1904, had shrunk to £6,103 in 1916-17.

During 1916-17 the principal purchases of the hay and chaff exported from the Commonwealth were made by India, the Straits Settlements, and Ceylon, while the bulk of the compressed fodder was exported to the Philippine Islands and Ceylon.

Imports of hay and chaff into the Commonwealth are usually unimportant; for the year 1915-16, however, they totalled 36,725 tons, valued at £227,133, obtained principally from New Zealand and the United States, while for 1916-17 only 38 tons were imported, valued at £223.

8. **Hay Production in Other Countries.**—As already noted, the hay crops of most European countries consist of grasses of various kinds, amongst which clover, lucerne, sainfoin and rye grass occupy prominent places. The statistics of hay production in these countries are not prepared on a uniform basis, and consequently any attempt to furnish

extensive comparisons would be misleading. It may be noted, however, that in the United Kingdom the production of hay from clover, sainfoin, etc., for the year 1916, amounted to 5,487,369 tons from 3,053,064 acres, while from permanent grasses a yield of 9,710,503 tons of hay was obtained from 6,521,192 acres, giving a total of 15,197,872 tons from 9,574,256 acres, or about 32 cwt. per acre.

## § 12. Green Forage.

1. **Nature and Extent.**—In all the States of the Commonwealth a considerable area is devoted to the production of green forage, mainly in connection with the dairying industry. The total area so cropped during the season 1916-17 was 390,876 acres. Of the total, the New South Wales area represented about 38½ per cent., that in Queensland 30 per cent., while that in Victoria amounted to 12½ per cent. Under normal conditions the principal crops cut for green forage are maize, sorghum, oats, barley, rye, rape, and lucerne, while small quantities of sugar-cane also are so used. Particulars concerning the area under green forage in the several States from 1890 onwards are furnished in the following table:—

AREA UNDER GREEN FORAGE, 1890-1 to 1916-17.

Season.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N. T.	Fed. Terr.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1890-1	37,473	10,091	9,546	7,349	161	1,497	...	...	66,117
1895-6	66,833	25,939	19,552	7,309	430	1,883	...	...	121,946
1900-1	78,144	18,975	41,445	13,136	1,024	3,749	...	...	156,473
1905-6	95,058	34,041	66,183	23,842	1,873	4,882	...	...	225,879
1910-11	179,382	71,826	89,667	20,728	4,545	8,695	19	...	374,862
1911-12	211,693	75,177	93,049	33,673	5,021	5,627	19	181	424,440
1912-13	154,522	84,460	135,354	39,954	7,339	6,304	60	13	428,006
1913-14	146,093	98,963	171,290	49,948	13,126	7,037	21	26	486,504
1914-15	* 949,539	139,654	184,239	52,656	19,098	6,809	83	80	1,352,158
1915-16	162,808	60,426	236,293	32,664	15,622	7,587	24	137	515,561
1916-17	149,824	49,667	117,174	37,352	28,653	8,133	24	49	390,876

\* Including area fed off.

2. **Value of Green Forage Crops.**—The value of these crops is variously estimated in the several States, and the Commonwealth total for the season 1913-14 may be taken approximately as £1,594,834, or about £3 5s. 7d. per acre; for 1914-15 as £2,019,365, or £1 9s. 10d. per acre; for 1915-16 as £2,348,532, or £4 11s. 1d. per acre, and for 1916-17 as £1,165,081, or £2 19s. 7d. per acre.

3. **Relation to Population.**—Particulars concerning the area under green forage per 1000 of the population of the Commonwealth and the several States for the seasons 1901-2 and 1912-13 to 1916-17 are given hereunder:—

AREA UNDER GREEN FORAGE PER 1000 OF POPULATION, 1901-2 and 1912 to 1916-17.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. T.	Fed. Terr.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1901-2	82	27	79	38	8	24	...	...	54
1912-13	87	61	213	93	24	32	17	7	90
1913-14	80	70	259	114	41	35	6	13	100
1914-15	* 510	98	272	119	59	34	21	41	274
1915-16	87	43	348	74	49	38	5	75	105
1916-17	81	36	175	86	93	41	5	22	80

\* Including area fed off.

## § 13. Sugar-Cane.

1. **Area.**—Sugar-cane is grown for sugar-making purposes in only two of the States of the Commonwealth, viz., Queensland and New South Wales, and much more extensively in the former than the latter. Thus, of the total area of 178,190 acres under sugar-cane in the Commonwealth for the season 1916-17, there were 167,221 acres, or about 94 per cent., in Queensland. Sugar-cane growing appears to have been started in the Commonwealth in or about 1862, as the earliest statistical record of sugar-cane as a crop is that which credits Queensland with an area of twenty acres for the season 1862-3. In the following season the New South Wales records shew that an area of two acres was devoted to the crop in the mother State. The area under cane in New South Wales reached its maximum in 1895-6 with a total of 32,927 acres. It then fell continuously to 1902-3, when it was lower than for any previous season since 1889-90. From 1902-3 to 1906-7 it remained practically stationary; from that time, with slight variations, it gradually fell to 10,969 acres in 1916-17, the lowest area under sugar-cane since 1882-3. In Queensland, on the other hand, although fluctuations in area are in evidence throughout, the general trend has been one of satisfactory increase, the area under cane for the season 1916-17 being the highest on record, that for 1914-15 being the next highest and that for 1915-16 only a little short of it. The area under sugar-cane in the Commonwealth from 1865 is given in the following table:—

AREA UNDER SUGAR-CANE, 1865-6 to 1916-17.

Season.	New South Wales.		Queensland.		Commonwealth.		Total.
	Productive.	Unproductive.	Productive.	Unproductive.	Productive.	Unproductive.	
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	
1865-6	141		450		591		591
1870-1	1,475	2,607	2,188	4,154	3,663	6,761	10,424
1875-6	3,654	2,800	7,668	5,791	11,322	8,591	19,913
1880-1	4,465	6,506	12,306	7,918	16,771	14,424	31,195
1885-6	9,583	6,835	40,756	18,430	50,339	25,265	75,604
1890-1	8,344	12,102	39,435	11,487	47,779	23,589	71,368
1895-6	14,398	18,529	55,771	21,476	70,169	40,005	110,174
1900-1	10,472	11,642	72,651	35,884	83,123	47,526	130,649
1905-6	10,313	11,492	96,093	38,014	106,406	49,506	155,912
1910-11	5,596	8,167	94,641	47,138	100,237	55,305	155,542
1911-12	5,244	8,663	95,766	34,610	101,010	43,273	144,283
1912-13	6,137	7,777	78,142	63,510	84,279	71,287	*155,567
1913-14	6,198	7,034	102,803	44,940	109,001	51,974	*160,976
1914-15	6,012	5,409	108,013	53,182	114,025	58,591	172,616
1915-16	6,030	5,228	94,459	58,563	100,489	63,796	164,285
1916-17	5,223	5,746	75,914	91,307	81,137	97,053	178,190

\* Including 1 acre Northern Territory.

2. **Productive and Unproductive Cane.**—The areas given in the preceding table represent the area on which sugar-cane was grown during the seasons specified for purposes other than green forage. The whole area was not in any case cut for crushing during that season, there being always a considerable amount of young and "stand over" cane, as well as a small quantity required for plants. Though the season of 1916-17 has the highest recorded acreage under sugar-cane, 1914-15 the second, and 1915-16 the third, these positions are not maintained as regards the area cut for crushing, the 1914-15 season having the highest recorded area of productive cane, 1913-14 the second, and that of 1905-6 the third highest.

3. **Yield of Cane and Sugar.**—Queensland statistics of the production of sugar-cane are not available for dates prior to the season 1897-8. In that season the total for the Commonwealth was 1,073,883 tons, as against 2,271,558 tons for the record season

1913-14. The second highest yield was in the season 1914-15, with a total of 2,104,239 tons, the third highest being in 1910-11 when 2,000,758 tons of cane were cut. The average production of cane during the decennium ended 1916-17 was 194,789 tons. The three highest yields of sugar were in 1913-14, 1914-15, and 1910-11, the quantities being 265,029 tons, 245,876 tons and 230,871 tons respectively, the decennial average being 194,789 tons. Particulars relative to the total yields of cane and sugar for a series of years are as follows:—

**YIELD OF SUGAR-CANE AND CANE-SUGAR, 1900-1 to 1916-17.**

Season.	New South Wales.		Queensland.		Commonwealth.	
	Cane.	Sugar.	Cane.	Sugar.	Cane.	Sugar.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1900-1 ...	199,118	19,938	848,328	92,554	1,047,446	112,492
1905-6 ...	201,998	20,102	1,415,745	152,722	1,617,743	172,824
1910-11 ...	160,311	20,115	1,840,447	210,756	2,000,758	230,871
1911-12 ...	147,799	17,299	1,534,451	173,296	1,682,250	190,595
1912-13 ...	140,914	16,817	994,212	113,060	1,135,141*	129,877
1913-14 ...	185,970	22,192	2,085,588	242,837	2,271,558	265,029
1914-15 ...	181,606	20,029	1,922,633	225,847	2,104,239	245,876
1915-16 ...	157,748	19,144	1,152,516	140,496	1,310,264	159,640
1916-17 ...	143,558	16,064	1,579,514	176,973	1,723,072	193,037

\* Including 15 tons Northern Territory.

Large quantities of molasses are produced as a by-product in the sugar mills, details giving the quantity produced and proportions used for distilling, fuel, manure and other purposes for a series of years will be found in Section XIII.—“Manufacturing Industries,” § 8, 17.

**4. Average Yields of Cane and Sugar per Acre.**—The average yield per acre of productive cane is much higher in New South Wales than in Queensland, the average during the last decade being 26.20 tons for the former and 16.77 for the latter State. During the nine seasons 1901-2 to 1909-10 the yield remained practically constant in New South Wales at about 21 tons per acre, except in 1907-8 when the average reached nearly 28 tons. For the past seven years, however, the average yield per acre in this State has shewn an upward tendency, reaching over 30 tons during 1913-14 and 1914-15. In Queensland the average yield per acre for 1910-11, viz., 19.45 tons, was by far the highest recorded for that State prior to 1913-14, when the average was over 20 tons to the acre. The 1916-17 season gives the highest recorded average, exceeding that of 1913-14 by over half a ton per acre.

The years shewing the highest average quantity of sugar produced per acre crushed in New South Wales were 1910-11, 1913-14 and 1914-15, the averages being 3.59, 3.58 and 3.33 tons per acre in the order named. In Queensland the highest average occurred in 1913-14 with 2.36 tons per acre; the next in order were those for 1916-17 and 1910-11 with 2.33 and 2.23 tons respectively.

**5. Quality of Cane.**—The quantity of cane required to produce a ton of sugar varies considerably not only with the district in which the cane is grown but also with the season. In Queensland, for instance, during the seasons 1902-3 to 1906-7 the sugar content of the cane crushed continuously diminished, so that while in 1902-3 the quantity of cane used in producing a ton of sugar was 8.38 tons, in the season 1906-7 the quantity required was 9.38 tons, the production in the former case being approximately 12 per cent. and in the latter 10½ per cent. of the weight of cane crushed. For the season 1907-8, the cane was of much better quality, and the quantity required to produce a ton of sugar was only 8.84 tons, the sugar content representing in this case somewhat more than 11½ per cent. of the weight of cane crushed. In 1908-9, owing in large

measure to the effect of frosts, the quantity of cane required to produce one ton of sugar was increased to 9.49 tons, the sugar thus representing only about 10½ per cent. of the weight of cane crushed, while in 1909-10 only 8.65 tons of cane were required to each ton of sugar, the sugar representing about 11½ per cent. of the weight of cane crushed. The especially favourable weather experienced throughout 1910 resulted in a very high average quantity of cane per acre being obtained, while the moisture which caused this led to a slight diminution in the saccharine density as compared with the previous year. During 1910-11 and the six following seasons the quantity of cane required to produce one ton of sugar was 8.73, 8.85, 8.79, 8.59, 8.51, 8.20 and 8.93 tons in the order named, the sugar produced representing about 11½ per cent. of the weight of cane crushed in each of those years, while the average quantity of sugar obtained per acre crushed was 2.23 tons in 1910-11, 1.81 in 1911-12, 1.45 in 1912-13, 2.36 in 1913-14, 2.09 in 1914-15, 1.49 in 1915-16, and 2.33 in 1916-17. It may be remarked in this connection that the systematic study of beet culture in European countries shewed that by suitable methods the sugar contents of the root could be greatly increased, and it is believed that a similar improvement can be effected in the yield from sugar-cane.

**AVERAGE YIELD OF SUGAR-CANE AND SUGAR PER ACRE, ALSO QUANTITY OF CANE, 1900-1 and 1905-6 to 1916-17.**

Season.	New South Wales.			Queensland.			Commonwealth.		
	Cane per acre Crushed.	Sugar per acre Crushed.	Cane to each ton of Sugar.	Cane per acre Crushed.	Sugar per acre Crushed.	Cane to each ton of Sugar.	Cane per acre Crushed.	Sugar per acre Crushed.	Cane to each ton of Sugar.
1900-1	19.01	1.90	9.99	11.68	1.27	9.17	12.60	1.35	9.31
1905-6	19.59	1.95	10.05	14.73	1.59	9.27	15.20	1.62	9.36
1910-11	28.65	3.59	7.97	19.45	2.23	8.73	19.96	2.30	8.67
1911-12	28.18	3.30	8.54	16.02	1.81	8.85	16.65	1.89	8.83
1912-13	22.96	2.74	8.38	12.72	1.45	8.79	13.47	1.54	8.74
1913-14	30.00	3.58	8.38	20.29	2.36	8.59	20.84	2.43	8.57
1914-15	30.21	3.33	9.07	17.80	2.09	8.51	18.45	2.16	8.56
1915-16	26.16	3.17	8.24	12.20	1.49	8.20	13.04	1.59	8.21
1916-17	27.49	3.08	8.94	20.81	2.33	8.93	21.24	2.38	8.93
Average 10 Seasons	26.20	2.99	8.77	16.77	1.92	8.75	17.39	1.99	8.75

**6. Relation to Population.**—The sugar-cane production of the Commonwealth during the past five seasons has averaged about 7 cwt. per head of population. In Queensland, the principal sugar-producing State, the production of cane per head has ranged between 1½ tons in 1912-13 and 3 tons in 1913-14. Details for the period 1912-13 to 1916-17 are as follows:—

**SUGAR-CANE PRODUCTION PER 1000 OF POPULATION, 1912-13 to 1916-17.**

State.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
	Tons.	Tons.	Tons.	Tons.	Tons.
New South Wales	79	102	98	84	77
Queensland	1,562	3,159	2,841	1,698	2,359
Commonwealth	240	466	426	266	353

**7. Sugar Bounties.**—The provision of bounties or similar aids to the sugar-growers of the Commonwealth early occupied the attention of the Commonwealth Parliament, the object in view being that of assisting the industry, and at the same time diminishing the employment of coloured labour in connection therewith. An account of the various Acts in connection with sugar bounties and sugar excise tariffs will be found on pages 394 to 396 of the Year Book No. 6. In 1912 the Sugar Excise Repeal Act and the Sugar Bounty Abolition Act were passed by the Federal Parliament,

conditionally on the Queensland Parliament approving of legislation prohibiting the employment of coloured labour in connection with the industry. The State Sugar Cultivation Act, the Sugar Growers Act, and the Sugar Growers' Employees Act, of 1913, having been approved of, the 1912 Federal Acts, which repeal all previous enactments in regard to excise on sugar and bounty on cane, came into force by proclamation in July 1913.

**8. Sugar Purchase by Commonwealth Government.**—In June 1915 the Commonwealth Government assumed control of the Australian sugar output, paying the growers a fixed price of £21 per ton of raw sugar and disposing of the refined product at £29 7s. 6d. per ton, the object being to enable the consumer to purchase sugar of 1A grade at 3½d. per lb. This arrangement was continued from year to year until 1918, when an agreement was made for two years ending 30th June, 1920.

**9. Beet Sugar.**—During the past few years an effort has been made to revive the sugar-beet industry in Victoria. During 1910-11 £554 was paid as bounty on 1,847 tons of beet, £2,244 on 7,481 tons during 1911-12, £1,667 on 6,207 tons during 1912-13, and £1,001 on 3,330 tons during 1913-14. For the 1913 crop the State Government paid £1 per ton for all topped clean roots delivered at the Maffra factory, for the 1914 crop £1 1s. was paid, and £1 5s. for the 1915 and 1916 crops.

**10. Acreage and Yield of Sugar Beet.**—The following table shews the acreage under sugar beet, and quantity grown in Victoria during the past five seasons :—

**AREA AND PRODUCTION OF SUGAR BEET IN VICTORIA, 1912-13 to 1916-17.**

Particulars.			1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
Area ...	...	acres	934	1,093	990	461	1,320
Production ...	...	tons	6,207	7,431	10,343	4,928	15,159
Average per acre ...	...	„	6.65	6.80	10.45	10.69	11.48

**11. Imports and Exports of Sugar.**—Notwithstanding the increase in the production of sugar in the Commonwealth during recent years, Australia's oversea import trade in cane sugar remained fairly extensive until 1906, the principal countries engaged in supplying this commodity being Java, Mauritius, and Fiji. In 1907 the exports of sugar exceeded the imports for the first time, the value of the net exports being £166,121. In 1908 and the following five years the imports exceeded the exports, while in 1914-15 the exports were the greater by 5,308 tons, representing a value of £138,474. In 1915-16 and 1916-17, however, the imports exceeded the exports by no less than 115,008 tons, valued at £1,847,310, in the former year, and by 80,128 tons, valued at £1,617,299, in the latter. The principal countries to which sugar is exported are the United Kingdom, the Pacific Islands, and New Zealand, but the bulk of the sugar exported from the Commonwealth is not of Australian origin, being merely a re-export of sugar produced elsewhere. Thus, of 1,033 tons exported during 1916-17, only 41 tons were of Australian origin. The sugar so re-exported comes mainly from Fiji and Java. Particulars concerning the imports and exports of cane sugar for 1901 and the past five years are as follows :—

**IMPORTS AND EXPORTS OF CANE SUGAR, 1901 and 1912 to 1916-17.**

Year.	Oversea Imports.		Oversea Exports.		Net Imports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Tons.	£	Tons.	£	Tons.	£
1901 ...	98,544	1,239,550	4,738	68,876	93,806	1,170,674
1912 ...	98,481	1,189,763	2,257	39,614	96,224	1,150,149
1913 ...	74,861	864,768	3,419	54,322	71,442	810,446
1914-15 ...	13,125	181,020	18,433	319,494	— 5,308	138,474
1915-16 ...	116,111	1,869,768	1,103	22,458	115,008	1,847,310
1916-17 ...	81,161	1,639,097	1,033	21,798	80,128	1,617,299

Note. — signifies net exports.

## § 14. Vineyards.

1. **Nature and Extent.**—The introduction of the vine into Australia has been set down by different investigators as at various dates, the years 1815 and 1828 being principally favoured. It would seem, however, that the vine was really brought out with the First Fleet which initiated the colonisation of Australia in 1788, and that consequently the Australian vine is as old as Australian settlement. As already mentioned, a report of Governor Hunter's gives the area under vines in 1797 as 8 acres. From New South Wales the vine spread to Victoria and South Australia, and these States have now far outstripped the mother State in the area which they have devoted to its cultivation. In Queensland and Western Australia also, vine-growing has been carried on for many years, but in neither State has the industry progressed with the rapidity attained in Victoria and South Australia. In Tasmania the climate is not favourable to the growth of grapes. The purposes for which grapes are grown in Australia are three in number, viz.—(i.) for wine-making, (ii.) for table use, (iii.) for drying. The total area under vines in the several States from 1860 onwards is given in the following table :—

COMMONWEALTH VINEYARDS, 1860-1 to 1916-17.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.		Acres.
1860-1 ...	1,584	1,138	—	3,180	335	There are no vineyards in Tasmania.	6,237
1865-6 ...	2,126	4,078	110	6,629	634		13,577
1870-1 ...	4,504	5,466	416	6,131	710		17,227
1875-6 ...	4,459	5,081	376	4,972	675		15,563
1880-1 ...	4,800	4,980	739	4,337	659		15,515
1885-6 ...	5,247	9,775	1,483	5,142	624		22,271
1890-1 ...	8,044	20,686	1,981	9,535	1,024		41,270
1895-6 ...	7,519	30,275	2,021	17,604	2,217		59,636
1900-1 ...	8,441	30,634	2,019	20,158	3,325		64,577
1905-6 ...	8,754	26,402	2,044	23,603	3,541		64,344
1910-11 ...	8,321	23,412	1,634	22,952	2,795		59,114
1911-12 ...	8,231	24,193	1,371	23,986	2,821		60,602
1912-13 ...	8,163	24,579	1,428	25,208	3,010		62,388
1913-14 ...	8,153	22,435	1,537	26,208	2,864		61,197
1914-15 ...	7,985	21,801	1,415	26,864	2,920		60,985
1915-16 ...	7,883	22,353	1,373	27,764	2,751		62,124
1916-17 ...	8,666	23,264	1,256	29,177	3,031		65,394

The area devoted to vines in the Commonwealth attained its maximum in the season 1904-5, when a total of 65,673 acres was reached. Each of the five following seasons shewed a decrease, the area in 1909-10 being only 58,151 acres. Since that year, however, the total has risen to 65,394 acres in 1916-17, being only 279 acres below that of 1904-5. South Australia is the only State where a steady annual increase has been recorded.

The wine-growing industry in Australia, more particularly in Victoria and New South Wales, received a severe check by various outbreaks of phylloxera. With a view to the eradication of this disease extensive uprooting of vineyards in the infested areas was undertaken, while further planting within such areas, except with phylloxera-resistant vines, was prohibited.

2. **Wine Production.**—The production of wine in Australia has not increased as rapidly as the suitability of soil and climate would appear to warrant. The cause of this is probably twofold, being in the first place due to the fact that the Australians are not a wine-drinking people and consequently do not provide a local market for this product, and in the second to the fact that the new and comparatively unknown wines of Australia find it difficult to establish a footing in the markets of the old world, owing to the competition of well-known brands. Active steps are being taken in various ways to bring the Australian wines under notice, and it may be confidently expected that when their



qualities are duly recognised the wine production of this country will exhibit a rapid development. Particulars concerning the quantity of wine produced in the several States during 1901-2 and the past five seasons are contained in the table given hereunder:—

**AUSTRALIAN WINE PRODUCTION, 1901-2 and 1912-13 to 1916-17.**

Season.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Commonwealth.
	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	No production of wine in Tasmania.	Gallons.
1901-2 ...	868,479	1,981,475	148,835	2,631,563	185,735		5,816,087
1912-13 ...	719,100	1,206,111	54,627	3,974,838	149,132		6,103,808
1913-14 ...	561,100	1,121,491	58,897	2,759,665	208,738		4,709,891
1914-15 ...	549,140	605,636	51,164	1,507,196	162,190		2,875,326
1915-16 ...	571,000	1,880,367	59,008	3,709,878	166,820		5,887,073
1916-17 ...	628,950	1,802,660	23,171	2,951,048	220,439		5,126,268

**3. Relation to Population.**—In relation to population the area of the vineyards of the several States exhibits a well-marked decline from 1901 to 1908, the Commonwealth total having fallen during the period from 17 to 13 acres per 1000 of the population. During the following eight seasons, however, the relation remained stationary, with the exception of a slight further decline in the 1914-15 season. Details for the period are furnished in the succeeding table:—

**AREA OF VINEYARDS PER 1000 OF POPULATION, 1901-2 and 1912-13 to 1916-17.**

Season.	N.S.W.	Victoria.	Q'land.	Sth. Aust.	W. Aust.	Tas.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1901-2 ...	6	24	4	58	19	...	17
1912-13 ...	5	18	2	59	10	...	13
1913-14 ...	4	16	2	60	9	...	13
1914-15 ...	4	15	2	61	9	...	12
1915-16 ...	4	16	2	63	9	...	13
1916-17 ...	5	17	2	67	10	...	13

**4. Imports and Exports.**—The principal countries of origin of wine imported into Australia are France, Spain, Portugal, and Italy, the greater portion of the sparkling wines coming from France and of still wines from Spain and Portugal. Particulars relative to the importations of wine into the Commonwealth during 1901 and the past five years are given hereunder:—

**COMMONWEALTH IMPORTS OF WINE, 1901 and 1912 to 1916-17.**

Year.	Quantity.			Value.		
	Sparkling.	Other.	Total.	Sparkling.	Other.	Total.
	Gallons.	Gallons.	Gallons.	£	£	£
1901	55,341	165,472	220,813	104,700	57,245	161,945
1912	67,851	85,874	153,725	132,830	36,377	169,207
1913	68,907	81,006	149,913	138,563	34,797	173,360
1914-15	28,179	71,633	99,812	56,998	32,953	89,951
1915-16	26,744	62,357	89,101	55,573	27,494	83,067
1916-17	18,659	47,741	66,400	39,212	26,497	65,709

The principal countries to which wine is exported from Australia are the United Kingdom and New Zealand, a small but fairly regular export trade being also carried on with India, Ceylon, Fiji, and the South Sea Islands. Details concerning the exports of wine from Australia during 1901 and the past five years are given in the following table:—

## COMMONWEALTH EXPORTS OF WINE, 1901 and 1912 to 1916-17.

Year.	Quantity.			Value.		
	Sparkling.	Other.	Total.	Sparkling.	Other.	Total.
	Gallons.	Gallons.	Gallons.	£	£	£
1901	2,936	863,147	866,083	6,972	122,751	129,723
1912	2,467	784,371	786,838	4,803	116,327	121,130
1913	1,768	701,872	703,640	3,767	102,263	106,030
1914-15	2,325	635,579	637,904	4,106	97,337	101,443
1915-16	3,638	726,113	729,751	7,001	113,593	120,599
1916-17	2,919	603,523	606,442	5,426	106,200	111,626

The sparkling wine included in the foregoing table consists largely of foreign wine re-exported.

**5. Other Viticultural Products.**—In addition to grapes for wine-making purposes, large quantities are grown in all the States for table use, while, particularly in Victoria and South Australia, the drying of raisins and currants is also carried on. The quantities of table grapes grown in the several States during 1901-2 and the past five seasons are as follows:—

## TABLE GRAPES, 1901-2 and 1912-13 to 1916-17.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania	C'wealth.
	Tons.	Tons.	Tons.	Tons.	Tons.		Tons.
1901-2 ...	3,475	5,110	750*	2,800*	1,100*	...	13,235
1912-13 ...	3,893	2,624	1,046	2,194	1,891	...	11,648
1913-14 ...	3,883	2,849	1,306	2,067	2,690	...	12,795
1914-15 ...	2,667	3,083	1,191	1,283	1,348	...	9,572
1915-16 ...	2,940	3,524	932	1,608	2,027	...	11,031
1916-17 ...	2,214	2,606	668	758	1,940	...	8,186

\* Estimated.

Statistics of the quantities of raisins and currants dried for 1901-2 and the past five seasons are given in the following table:—

## RAISINS AND CURRANTS DRIED, 1901-2 and 1912-13 to 1916-17.

Season.	N. S. Wales.		Victoria		South Australia.		West. Aust.		C'wealth.	
	Raisins.	Currants.	Raisins.	Currants.	Raisins.	Currants.	Raisins.	Currants.	Raisins.	Currants.
	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.
1901-2 ...	*	*	27,533	2,546	7,340	3,413	*	*	140,832	
1912-13 ...	4,417		109,677	48,337	35,248	52,208	975	600	251,462	
1913-14 ...	4,874		120,303	62,098	35,548	49,170	940	837	273,770	
1914-15 ...	2,591	1,252	111,006	28,527	35,305	24,774	989	1,152	149,891	55,705
1915-16 ...	5,539	2,415	180,104	70,556	59,929	66,518	1,496	1,128	247,068	140,617
1916-17 ...	4,239	2,276	142,970	66,449	35,624	50,147	1,332	1,843	184,165	120,715
Average 10 seasons ...	3,792		106,550	39,893	35,135	41,023	1,146	1,112	228,651	

\* No record.

† Incomplete.

‡ Average for five seasons.

From the above figures it will be noted that substantial progress has been made in the production of raisins and currants in the Commonwealth, the increase being in evidence in each of the four contributing States. From 1901 to 1916-17 the percentage of increase in the production of raisins and currants in Victoria was 419 and 2510 respectively, and in South Australia 385 and 1369 per cent. The highly satisfactory increase in regard to currants was largely due to improved methods of cultivation, while the introduction of cincturing, or ringing, the vines was also responsible for an increased yield.

**6. Imports and Exports.**—The following table gives the oversea imports and exports of raisins and currants during 1903 and the past five years:—

**COMMONWEALTH OVERSEA IMPORTS AND EXPORTS OF RAISINS AND CURRANTS,  
1903 and 1912 to 1916-17.**

Year.	Oversea Imports.		Oversea Exports.		Net Exports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
<b>RAISINS.</b>						
	lbs.	£	lbs.	£	lbs.	£
1903 ...	1,237,470	16,549	639,726	8,913	—547,744	—7,636
1912 ...	174,690	4,548	1,514,678	27,505	1,339,988	22,957
1913 ...	189,504	4,837	1,918,320	25,365	1,728,816	20,528
1914-15 ...	76,132	2,646	1,184,164	19,506	1,108,032	16,860
1915-16 ...	124,964	3,983	6,952,041	215,270	6,827,077	211,287
1916-17 ...	45,237	1,907	5,621,551	166,341	5,576,314	164,434
<b>CURRANTS.</b>						
1903 ...	8,640,693	61,313	92,650	1,800	—8,548,043	—60,513
1912 ...	248,235	2,999	384,447	4,275	136,212	1,276
1913 ...	81,530	1,033	472,193	5,122	390,663	4,089
1914-15 ...	29,818	476	929,726	12,583	899,908	12,107
1915-16 ...	1,218,947	17,728	1,168,557	25,316	—50,390	7,588
1916-17 ...	2,416	54	6,525,426	165,006	6,523,010	164,952

Note. — Signifies net imports.

Except in the years 1904, 1907, 1908, which followed abnormally good seasons, the imports of raisins exceeded the exports for all years prior to 1912. During the past five years, however, the exports exceeded the imports, the average for the quinquennium being 3,316,047 lbs., valued at £87,213. The increased production of currants in Australia in recent years had a tendency to gradually reduce the importation and increase the exportation of currants, the first year shewing a margin in favour of exports being 1912, when an excess of 136,212 lbs., valued at £1276, was recorded. In 1916-17 the excess was no less than 6,523,010 lbs., valued at £164,952.

## § 15. Orchards and Fruit Gardens.

1. **Nature and Extent.**—Fruit-growing has made rapid progress in the Commonwealth during recent years, the area devoted thereto having increased in the past ten years by no less than 94,474 acres. The States in which the increase is most marked are:—Victoria, 29,066 acres; Tasmania, 20,330 acres; New South Wales, 14,183 acres; and Queensland, 11,044 acres. During the same period the South Australian fruit-growing area increased 10,595 acres, while that in Western Australia exhibited an increase of 9,230 acres. The increased areas in Tasmania and Western Australia are mainly due to extensive plantings of apple trees with a view to the possibilities of the London market for fresh fruit. The total area devoted to orchards and fruit gardens in the several States is given hereunder:—

**COMMONWEALTH ORCHARDS AND FRUIT GARDENS, 1901-2 and 1912-13 to 1916-17.**

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N.T.	Fed. Terr.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1901-2...	48,448	50,055	14,396	16,315	6,076	11,485	...	...	146,775
1912-13	49,329	63,209	18,556	23,905	19,540	30,575	...	60	205,174
1913-14	51,457	67,183	20,072	24,425	20,575	32,200	50	59	216,021
1914-15	53,905	74,302	22,212	25,811	21,378	35,007	50	46	232,711
1915-16	57,515	80,120	22,616	27,576	21,805	37,351	...	25	247,008
1916-17	60,360	83,087	25,293	28,794	21,747	38,380	...	26	257,687

The varieties of fruit grown differ materially in various parts of the several States, and range between such fruits as the pineapple, paw-paw, mango, and guava of the

tropics, and the strawberry, the raspberry, and the currant of the colder parts of the temperate zone. The principal varieties grown in Victoria are the apple, plum, peach, apricot, cherry, and pear. In New South Wales, citrus fruits (orange, lemon, etc.), occupy the leading position, although apples, pears, peaches, plums, and apricots are also extensively grown. In Queensland the banana, the orange, the pineapple, the apple, the peach, the mango, and the plum are the varieties most largely grown. In South Australia, in addition to the apple, pear, peach, apricot, plum, orange, and lemon, the almond and the olive are also largely grown. In Western Australia, the apple, orange, peach, pear, plum, fig, and apricot are the sorts chiefly grown, while in Tasmania, although the apple represents over four-fifths of the area in that State devoted to fruit-growing, small fruits, such as the currant, raspberry, and gooseberry, are very extensively grown, and the balance of the area is mainly occupied with the pear, plum, apricot, peach, and cherry. The following table gives the acreage under the principal kinds of fruit grown, and the quantity and value of fruit produced. The acreages shewn are exclusive of young trees not yet bearing. The acreages for each kind of fruit in Victoria are not available:—

**PARTICULARS OF THE PRINCIPAL KINDS OF FRUIT GROWN IN THE SEVERAL STATES OF THE COMMONWEALTH DURING THE SEASON 1916-17.**

Fruit.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
Apples ... acres	7,005	...	1,287	8,321	7,163	19,712	...
bushels	533,026	617,929	39,409	169,061	647,877	1,446,996	3,454,298
£	133,256	154,482	14,778	57,761	242,954	397,924	1,001,155
Apricots ... acres	1,065	...	93	2,148	451	838	...
bushels	80,577	217,424	4,294	154,879	30,288	70,016	557,478
£	34,245	46,203	1,610	48,366	12,494	19,837	162,755
Bananas ... acres	1,165	...	9,800	...	86	...	...
bunches	†109,408	...	1,051,212	...	†2,575	...	...
£	54,704	...	175,202	...	2,575	...	232,481
Lemons ... acres	2,487	...	219	407	174	...	...
bushels	230,830	53,940	10,535	24,669	28,042	...	348,016
£	63,478	16,182	2,809	7,401	8,413	...	98,283
Nectarines { acres	6,906	...	1,706	1,914	1,254	72	...
and { bshls.	559,819	803,209	70,967	153,399	135,178	5,590	1,728,162
peaches { £	209,868	173,963	16,633	42,182	54,560	1,397	498,603
Oranges ... acres	10,475	...	2,420	2,236	1,772	...	...
bushels	910,777	59,985	227,545	101,186	158,166	...	1,457,659
£	273,234	20,995	91,018	40,474	63,222	...	488,943
Pineapples acres	33	...	4,186	...	...	...	...
dozen	3,629	...	867,221	...	...	...	870,850
£	635	...	93,949	...	...	...	94,584
Pears ... acres	1,824	...	219	1,194	798	1,265	...
bushels	152,241	661,962	2,371	121,438	97,712	196,472	1,232,196
£	38,060	99,294	741	22,499	22,799	29,470	212,863
Other fruits acres	8,560	...	3,126	4,589	1,555	2,514	...
£	289,547	139,477	63,053	71,745	43,694	77,521	685,037
Total ... acres	39,520	56,631	22,506	20,809	13,253	24,401	177,120
£	1,097,027	650,596	459,793	290,428	450,711	526,149	3,474,704

\* Including Federal Territory, 26 acres, value £500. † Cases. ‡ Bushels.

2. **Relation to Population.**—The acreage of orchards and fruit gardens of the Commonwealth in relation to population has increased during the last fifteen years to an extent which more than compensates for the decline experienced in the case of vineyards. Taking the two in conjunction, the relative area under vineyards and orchards has, during the period, considerably increased, averaging 55 acres per 1000 of population in 1901-2, and 66 in 1916-17. Details for orchards and fruit gardens for 1901-2 and the past five seasons are as follows:—

**AREA OF ORCHARDS AND FRUIT GARDENS PER 1000 OF POPULATION,  
1901-2 and 1912-13 to 1916-17.**

Season.	N.S.W.	Victoria.	Q'land.	Sth. Aust.	W. Aust.	Tas.	N.T.	Fed. Terr.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1901-2...	35	41	28	45	31	66	...	...	38
1912-13	28	46	29	56	64	155	...	31	43
1913-14	28	48	30	56	64	160	14	30	44
1914-15	29	52	33	58	66	174	13	23	47
1915-16	31	57	33	63	69	186	...	14	50
1916-17	32	59	38	67	70	192	...	12	53

**3. Commonwealth Imports and Exports.**—A considerable fruit trade, both import and export, is carried on by the Commonwealth with oversea countries, the major portion of the importations consisting of dried fruits, while the bulk of the exports is made up of fresh fruits. Amongst the imports, the principal dried fruits are currants, dates, sultanas, and raisins, and the principal fresh fruits bananas, oranges, lemons, and apples. In normal times the currants imported have been mainly from Greece, the dates from Arabia, Asia Minor and Persia, the raisins mainly from Spain. Of the fresh fruits imported during 1916-17, the bananas were chiefly from Fiji, the oranges and lemons from the United States and Italy, and the apples from the United States and Canada. In 1907 a considerable increase in the trade in Australian dried fruits took place, the total export for the year being valued at £76,872, of which £71,506 represented Australian fruits and £5,366 re-exports of foreign fruits. In 1908 the export declined to £35,359, of which £33,111 represented Australian fruits, and £2,248 re-exports of foreign fruits. There was a further decline in 1909, when the total value was only £13,013, made up of £11,826 of Australian produce, and £1,187 of re-exports. There was a small increase in the exports in 1910 and 1911, the total for the latter year amounting to £23,900; in 1912 there was a further and more substantial increase, the value of dried fruits exported being £48,012. In 1913 the export value was £32,099; in 1914-15 £35,691; and in 1915-16 £244,069. In 1916-17 the value of dried fruits exported was the largest on record, viz., £372,712; of this sum £367,456 represented Australian produce, and the balance of £5,256 re-exports of foreign fruits. The principal consignees of Australian dried fruits exported were United Kingdom and New Zealand. The fresh fruits exported during the year were valued at £141,583, and consisted mainly of apples. These were all of Australian origin with the exception of re-exports valued at £1,828. The principal countries to which these were sent were the United Kingdom, New Zealand and the East Indies.

Particulars concerning the oversea imports and exports of dried fruits for 1901 and the last five years are as follows:—

**COMMONWEALTH OVERSEA IMPORTS AND EXPORTS OF DRIED FRUITS,\*  
1901 AND 1912 TO 1916-17.**

Year.	Oversea Imports.		Oversea Exports.		Net Imports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	lbs.	£	lbs.	£	lbs.	£
1901	14,265,731	179,305	831,996	14,206	13,433,735	165,099
1912	7,484,432	81,913	2,545,779	48,012	4,938,653	33,901
1913	10,551,877	112,439	2,478,585	32,099	8,073,292	80,340
1914-15	4,071,250	58,451	2,313,768	35,691	1,757,482	22,760
1915-16	11,857,787	159,398	8,254,878	244,069	3,602,909	84,671
1916-17	6,058,769	89,006	13,460,274	372,712	—7,401,505	—283,706

Note. — signifies net exports. \* Including raisins and currants published under Vineyards, § 14. 6.

Similar information with regard to the Commonwealth oversea trade in fresh fruits for the same period is contained in the table given hereunder :—

**COMMONWEALTH OVERSEA IMPORTS AND EXPORTS OF FRESH FRUITS,  
1901 AND 1912 TO 1916-17.**

Year.	Oversea Imports.		Oversea Exports.		Net Exports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	lbs. *	£	lbs. *	£	lbs. *	£
1901		45,955		167,926		121,971
1912	30,607,900	217,796	67,469,500	468,306	36,861,600	250,510
1913	47,233,100	356,060	58,491,400	399,800	11,258,300	43,740
1914-15	36,999,600	344,466	26,031,400	176,024	-10,968,200	-168,442
1915-16	43,281,700	374,174	64,554,800	415,305	21,273,100	41,131
1916-17	46,304,700	299,360	16,294,800	141,583	-30,009,900	-157,777

Note. — Signifies net imports.

\* Not available.

4. **Jams and Jellies.**—A considerable oversea trade in jams and jellies is now carried on by the Commonwealth, the value of the imports for the year 1916-17 amounting to £6,210, and of the exports to £949,112. The country of origin of the bulk of the importations is the United Kingdom, while the destinations of the exports are principally the United Kingdom, India and Pacific Islands. Particulars relative to imports and exports for 1901 and the last five years are as follow :—

**COMMONWEALTH OVERSEA TRADE IN JAMS AND JELLIES,  
1901 AND 1912 TO 1916-17.**

Year.	Oversea Imports.		Oversea Exports.		Net Exports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	lbs.	£	lbs.	£	lbs.	£
1901	1,312,377	23,858	4,140,072	64,389	2,827,695	41,031
1912	476,504	13,031	1,429,338	23,089	952,834	10,008
1913	453,951	12,213	1,858,231	29,402	1,404,280	17,189
1914-15	438,756	11,824	4,770,117	90,909	4,331,361	79,085
1915-16	288,165	9,087	22,849,553	437,144	22,561,388	428,057
1916-17	152,260	6,210	45,074,352	949,112	44,922,092	942,902

5. **Preserved Fruit.**—Details concerning the quantities and values of preserved fruit imported into and exported from the Commonwealth cannot readily be obtained, owing to the fact that in the Customs returns particulars concerning fruit and vegetables are in certain cases combined. The total value of fruit and vegetables, other than fresh fruits, dried fruits, potatoes, and onions, imported into Australia during 1916-17 was £56,003, and the corresponding value of exports was £139,230.

## § 16. Minor Crops.

1. **Nature and Extent.**—In addition to the leading crops which in the foregoing pages have been dealt with in some detail, there are many others which, owing either to their nature, or to the fact that their cultivation has advanced but little beyond the experimental stage, do not occupy so prominent a position. Some of the more important of these are included under the headings—Market Gardens, Pumpkins and Melons, Turnips, Mangolds, Nurseries, Grass Seed, Tobacco, Hops, and Millet. Cotton-growing has in recent years received some attention in the tropical portions of the Commonwealth, although the industry cannot yet be said to be beyond the experimental stage.

The total area in the Commonwealth during the season 1916-17 devoted to crops not dealt with in previous sections was 67,023 acres, of which market gardens accounted for 27,884 acres, or more than 41 %.

**2. Market Gardens.**—Under this head are included all areas on which mixed vegetables are grown. Where considerable areas are devoted to the production of one vegetable, such for instance as the potato, the onion, the melon, the tomato, etc., the figures are usually not included with market gardens, but are shewn either under some specific head, or under some general head as "Other Root Crops," or "All Other Crops." The area under market gardens in the several States of the Commonwealth during 1901-2 and each of the last five seasons is given in the table hereunder:—

**COMMONWEALTH MARKET GARDENS, 1901-2 and 1912-13 to 1916-17.**

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N.T.	Federal Terr.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1901-2 ...	7,834	8,752	2,328	9,005	2,142	1,746	...	...	31,807
1912-13 ...	9,836	10,414	2,386	2,857	2,924	1,458	*50	11	29,936
1913-14 ...	10,585	10,777	2,611	2,265	2,851	† 769	60	22	29,940
1914-15 ...	10,475	12,935	2,648	1,830	2,785	628	60	27	31,388
1915-16 ...	10,940	11,379	2,330	1,712	2,787	435	...	27	29,610
1916-17 ...	10,683	10,746	2,305	1,522	2,153	448	...	27	27,884

\* Included with South Australia prior to 1910-11. † Crops, other than Market Gardens, were included in previous years.

The area for 1916-17 was in excess of that for 1901-2 in New South Wales, Victoria, and Western Australia. In South Australia the falling-off is more apparent than real, being in large part due to a change in the classification of crops introduced in connection with the new system of collection which came into force for 1907-8. It is believed that the figures given for the earlier years are considerably in excess of the reality. During the past five seasons there has been very little variation in the total area of market gardens in the Commonwealth as a whole. Comparing the earliest of these with the latest, New South Wales and Victoria shew an increase, viz., 847 and 332 acres respectively, while South Australia and Western Australia shew a decrease of 1,335 and 771 acres respectively. For the Commonwealth as a whole a corresponding decrease of 2,052 acres is shewn.

**3. Grass Seed.**—The total area under this crop during 1916-17, exclusive of New South Wales, for which State no figures are available, was 4,522 acres, of which 1,769 acres were in Victoria, 1,588 acres in Queensland, and 1,155 acres in Tasmania. The total yield for 1916-17, excluding New South Wales, was 40,754 bushels.

**4. Tobacco.**—Tobacco-growing is an industry which has experienced marked fluctuations, although at one time it promised to occupy an important place amongst the agricultural industries of the Commonwealth. Thus, as early as the season 1888-9 the area under this crop amounted to as much as 6,641 acres, of which 4,833 were in New South Wales, 1,685 in Victoria, and 123 in Queensland. This promise of importance was, however, not fulfilled, and after numerous fluctuations, in the course of which the Victorian area rose in 1895 to over 2000 acres, and that in Queensland to over 1,000 acres, the total area for the season 1916-17 had declined to 1,342 acres, distributed as follows:—New South Wales, 952 acres; Victoria, 73 acres; and Queensland, 317 acres. This decline in production appears to have been due to the comparatively small demand which existed in Australia for the locally-produced leaf, and to the fact that the cost of production and preparation in the Commonwealth prevented the Australian leaf from obtaining a footing in outside markets. Possibly under more

favourable circumstances, and with greater attention given to the production of leaf of the best quality only, the industry may eventually assume considerable proportions. In all the States in which its cultivation has been tried, the soil and climate appear to be very suitable for the growth of the plant, and the enormous importations of tobacco in its various forms into the Commonwealth furnish an indication of the extensive local market which exists for an article grown and prepared in such a manner as to meet the requirements of consumers. The value of the net importations of tobacco into the Commonwealth during the year 1916-17 amounted to £913,391, comprising unmanufactured tobacco £828,686, cigars £84,721, cigarettes £37,424, and snuff £907, while manufactured tobacco shewed a balance in favour of exports amounting to £38,347.

5. **Pumpkins and Melons.**—The total area under this crop in the Commonwealth during 1916-17 was 18,773 acres, of which 3,119 acres were in New South Wales, 2,064 acres in Victoria, 12,566 acres in Queensland, 659 acres in Western Australia, and 345 in South Australia. The production amounted to 11,504; 11,103; 37,511; 1,674; and 2,253 tons respectively.

6. **Hops.**—Hop-growing in the Commonwealth is practically confined to Tasmania and some of the cooler districts of Victoria, the total area for the season 1916-17 being 1,331 acres, of which 1,241 acres were in Tasmania, and 87 acres in Victoria; a small area of 3 acres was also grown in South Australia. The Tasmanian area, though still small, has increased rapidly during the past fourteen years, the total for the season 1901-2 being only 599 acres. On the other hand, the Victorian area, which in 1901-2, was 307 acres, had diminished to 87 acres in 1916-17. The cultivation of hops was much more extensive in Victoria some thirty years ago than at present, the area devoted to this crop in 1883-4 being no less than 1758 acres. During the year 1916-17 the net importations of hops into the Commonwealth represented a weight of 645,256 lbs. and a value of £31,592. The total value of the net importations into Australia during the past ten years amounted to £544,100, thus indicating the existence of a regular and extensive local demand.

7. **Millet.**—Millet appears in the statistical records of three of the Commonwealth States. The total area devoted thereto in 1916-17 was 3,931 acres, of which 1,720 acres were in New South Wales, 1143 in Victoria, 1063 in Queensland and 5 in the Northern Territory. The particulars here given relate to millet grown for grain and fibre. That grown for green forage is dealt with in the section relating thereto.

8. **Nurseries.**—In all the States somewhat extensive areas are devoted to nurseries for raising plants, trees, etc., but statistics concerning the area so occupied for flowers, fruit trees, etc., are only available for New South Wales, Victoria and Western Australia. During 1916-17 the area in those States was 571; 1,162; and 93 acres respectively. Statistics so far as they relate to forestry are given elsewhere.

9. **Cotton.**—Cotton-growing on a small scale has been tried in Queensland, but so far without very marked success. In 1902 8 acres were devoted to this crop, in 1907 300 acres were under cultivation, and in 1911 the maximum either in regard to area or production was reached, an area of 605 acres producing 186,894 lbs. unginned cotton. A gradual falling-off has since been experienced, and in 1916 the area was only 76 acres with a production of 24,264 lbs. cotton. Special efforts have recently been made to encourage the growth of cotton in Queensland, and the Agricultural Department of that State in 1916 distributed to upwards of 300 intending growers sufficient seed to plant about 800 acres. Hopes are entertained that with the invention of a mechanical device for the picking of the cotton the industry will become firmly established, since the soil and conditions appear eminently suitable for the growth of this crop. Small areas in the Northern Territory have also been planted with cotton. The tropical portions of Western Australia have also long been regarded as suitable for its cultivation.



10. **Coffee.**—Queensland is the only State of the Commonwealth in which coffee-growing has been at all extensively tried, and here the results have up to the present time been far from satisfactory. The total area devoted to this crop reached its highest point in the season 1901-2, when an area of 547 acres was recorded. Since then the area continuously declined to 1906-7, when it was as low as 256 acres. During the season 1907-8 the area increased to 304 acres, declining to 285 acres in 1908-9, 200 acres in 1910-11, 198 acres in 1911-12, 196 acres in 1912-13, 165 acres in 1913-14, 150 acres in 1914-15, and 91 acres in 1915-16. During 1916-17, 103 acres were under cultivation, the yield amounting to 15,530 lbs., valued at £582.

11. **Other Crops.**—Miscellaneous small crops are grown in the several States, amongst which may be mentioned tomatoes, rhubarb, artichokes, arrowroot, chicory, and flowers.

### § 17. Bounties on Agricultural Products.

1. **General.**—The Bounties Act of 1907 passed by the Federal Parliament in order to encourage the manufacture and production of certain articles in the Commonwealth, included among the items on which bonuses were payable several agricultural products. Under an Act passed in 1912 the provisions of the 1907 Act in respect of certain items were renewed. Products of the soil on which these bounties were payable are as follows:—

#### BOUNTIES ON AGRICULTURAL PRODUCTS.

Article.	Period dating from 1st July, 1907, during or in respect of which Bounty may be paid.	Rates of Bounty.	Maximum amounts which may be assigned in any one year.
Cotton, ginned ... ..	8 years	10 % on market value	£ 6,000
Fibres—			
New Zealand flax ... ..	10 "	10 " "	3,000
Flax and hemp ... ..	10 "	10 " "	8,000
Jute ... ..	10 "	20 " "	9,000
Sisal hemp ... ..	10 "	10 " "	3,000
Oil materials supplied to an oil factory for the manufacture of oil—			
Cottonseed ... ..	8 "	10 " "	1,000
Linseed (flax seed) ... ..	10 "	10 " "	5,000
Rice, uncleaned ... ..	10 "	20s. per ton	1,000
Coffee, raw, as prescribed ... ..	8 "	1d. per lb.	1,500
Tobacco leaf for the manufacture of cigars, high grade, of a quality to be prescribed ... ..	10 "	2d. "	4,000
Fruits—			
Dates (dried)* ... ..	15 "	1d. "	1,000
Dried (except currants and raisins) or candied, and exported	10 "	10 % on market value	6,000

\* Any unexpended amount assigned in any year to be available for the years following.

At the present time the only one of these bounties still in force is that relating to dates.

Although the rate of bonus on the several articles was fairly liberal, the bounties were not availed of to any great extent, as will be seen from the following table, which gives particulars as to the quantity of the articles raised and the amounts paid as bounties in respect thereto for the five financial years ended 1916-17 :—

**PARTICULARS OF BOUNTIES PAID ON AGRICULTURAL PRODUCTS (OTHER THAN SUGAR), 1912-13 to 1916-17.**

Article.	Quantity produced on which Bounties were paid.					Amount paid as Bounties.				
	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
						£	£	£	£	£
Cotton, ginned ...lbs.	46,043	9,642	...	13,751	...	95	21	...	22	...
Fibres—										
Flax and hemp tons	101	137	34	238	122	215	318	77	634	267
Sisal hemp ...	...	...	...	2,250	...	...	...	...	2	...
Oil materials supplied to an oil factory for the manufacture of oil—										
Cottonseed ... lbs.	84,479	6,306	...	22,400	...	13	1	...	10	...
Linseed (flax seed) cwt.	100	...	...	...	...	9	...	...	...	...
Coffee, raw, as prescribed ... lbs.	30,053	17,540	17,022	732	...	125	73	71	3	...
Tobacco leaf for the manufacture of cigars, high grade, of a quality to be prescribed. lbs.	25,820	41,263	41,891	17,423	57,795	215	344	349	145	488
Fruits—										
Dried (except currants and raisins) or candied, & exported. lbs.	196,837	142,928	41,212	6,000	579,334	587	433	98	16	2,063

During the year 1916-17 the total amount paid in respect of flax and hemp was claimed by the State of Victoria. The bounty paid for tobacco leaf was paid to New South Wales and Queensland, the amounts being £16 and £472 respectively. Victoria South Australia, and Tasmania claimed the bonuses on dried fruits, the amounts being £80, £1,698, and £285 in the order named.

No bounties were paid on New Zealand flax, jute, or uncleaned rice, nor have any yet been paid on dates.

## § 18. Fertilisers.

1. **General.**—In the early days of settlement and cultivation in the Commonwealth, scientific cultivation was in a much less developed state than it is to-day. The early farmers were neither under the necessity, nor in fact, aware of the necessity, of supplying the constituents to the soil demanded by each class of crop. The widely divergent character of the soils in the Commonwealth, their degeneration by repeated cropping, the limitations of climatic conditions, the difficulties of following any desired order of rotation of crops, all rendered it essential to give attention to artificial manuring. The introduction of the modern seed-drill, acting also as a fertiliser distributor, has greatly facilitated the use of artificial manures, and much land formerly regarded as useless for cultivation has now been made productive. There is reason to believe that this feature will be even more strikingly characteristic of the future.

2. **Fertilisers Acts.**—In order to protect the interests of users of artificial manures legislation has been passed in each of the States, regulating the sale and preventing the adulteration of fertilisers. A list of these Acts and their main features will be found in Year Book No. 6. (pages 406 and 407).

3. **Imports.**—The local production of artificial manures has assumed large proportions during the last few years, though considerable quantities are still imported. The importation of fertilisers has increased over 200 per cent. since 1901. The chief items, as regards both quantity and value, are those relating to phosphates, a fertiliser which has proved itself to be very suitable for the growing of cereals in Australian

soils. With the exception of very small quantities from the United Kingdom and New Zealand, the whole of the manufactured superphosphates imported during 1916-17 was obtained from Japan. The colony of Gilbert and Ellice Islands, with 46 per cent., was the principal contributor of rock phosphates; Christmas Island contributed 33 per cent., and the balance, about 21 per cent., was obtained from other South Sea Islands. All guano, except 720 cwt. from the United Kingdom, came from the Pacific Islands.

The imports of artificial manures during the last five years are given in the following table. It will be noticed that the quantity of rock phosphates imported since 1912 shews an increase amounting to 81 per cent. The imports were consistently large during the last four years. The imports of manufactured superphosphates shewed an increase of about 50 per cent. during 1910, for 1911 there was a further increase of some 5 per cent., but during 1912 and the three following years there was a decrease, the falling-off in 1915-16 and 1916-17 being particularly heavy.

#### COMMONWEALTH IMPORTS OF FERTILISERS, 1912 to 1916-17.

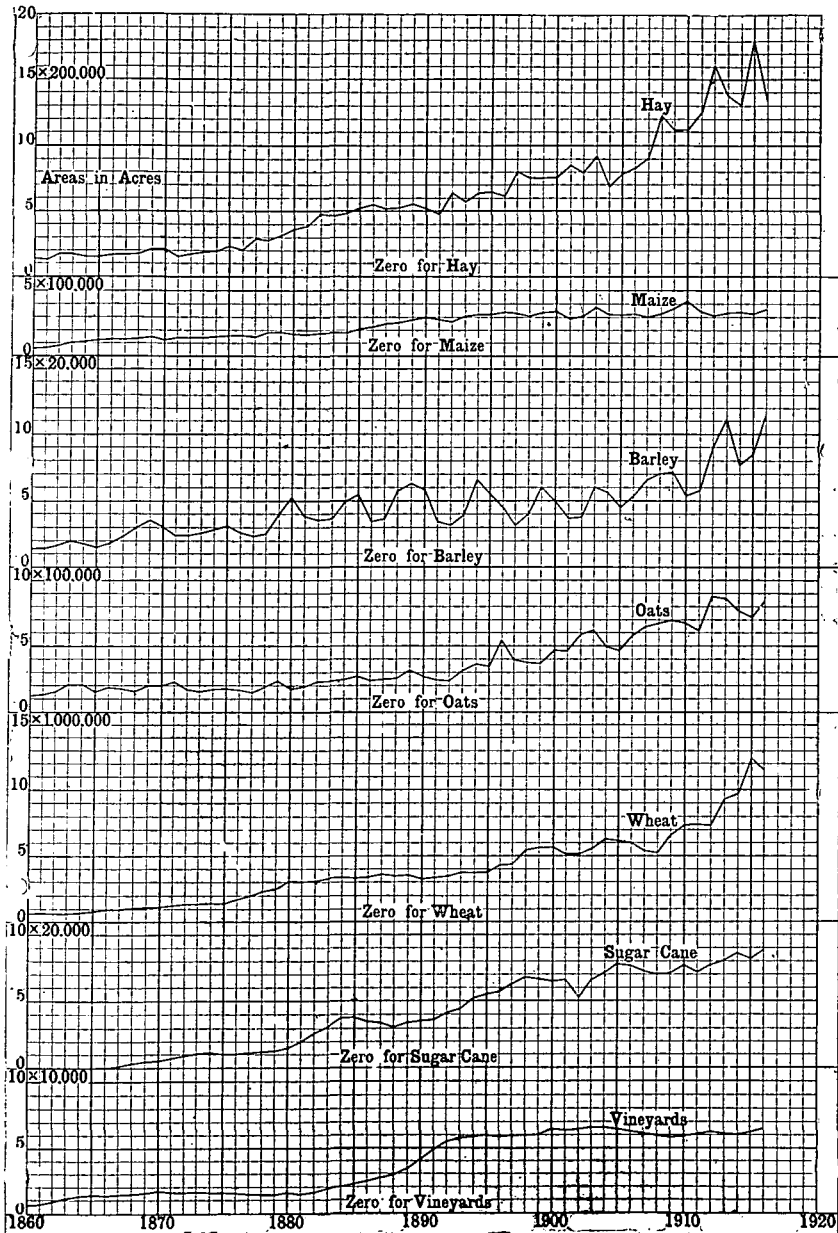
Fertiliser.		1912.	1913.	1914-15.	1915-16.	1916-17.
Bonedust ... ..	Cwt.	8,769	15,341	10,901	...	40
"	£	2,309	4,378	3,136	...	18
Guano ... ..	Cwt.	541,873	26,819	2,063	1,800	264,581
"	£	64,833	5,733	814	792	30,772
Superphosphates ...	Cwt.	967,450	534,138	502,382	57,790	200
"	£	155,643	89,474	79,889	10,368	61
Rock Phosphates ...	Cwt.	1,963,640	3,200,648	3,464,547	3,813,788	3,556,661
"	£	259,394	397,634	397,284	440,434	444,984
Other ... ..	Cwt.	247,025	279,308	175,739	117,312	166,674
"	£	82,769	90,902	65,703	52,972	109,471
Total ... {	Cwt.	3,728,788	4,056,314	4,155,682	3,990,690	3,988,056
	£	565,548	587,421	546,826	504,506	589,306

4. Exports.—The subjoined table shews the exports of artificial manures for the years 1912 to 1916-17. Practically the whole of these fertilisers are manufactured locally, and are shipped mainly to New Zealand, Java, Japan and the Pacific Islands:—

#### COMMONWEALTH EXPORTS OF FERTILISERS, 1912 to 1916-17.

Fertiliser.		1912.	1913.	1914-15.	1915-16.	1916-17.
Bonedust ... ..	Cwt.	125,546	86,295	148,229	71,795	37,337
"	£	38,188	26,023	45,707	22,563	12,832
Guano ... ..	Cwt.	500	6,242	2,800	...	4,455
"	£	100	848	470	...	1,061
Superphosphates ...	Cwt.	182,377	257,629	311,067	823,361	483,552
"	£	34,400	47,396	64,924	156,862	105,492
Rock Phosphates ...	Cwt.	...	18,555	22,340	75,839	66,010
"	£	...	3,050	3,423	10,695	8,464
Soda Nitrate ... ..	Cwt.	5,523	10,154	1,500	2,619	7,339
"	£	5,560	5,386	897	1,835	5,678
Ammonia Sulphate ...	Cwt.	73,193	46,067	113,801	129,651	109,248
"	£	51,022	31,577	75,379	102,821	111,794
Other ... ..	Cwt.	146,348	237,734	224,309	86,964	72,572
"	£	49,316	63,154	38,972	28,059	20,925
Total ... {	Cwt.	533,487	662,676	824,046	1,190,229	780,513
	£	175,686	177,434	229,078	322,835	266,246

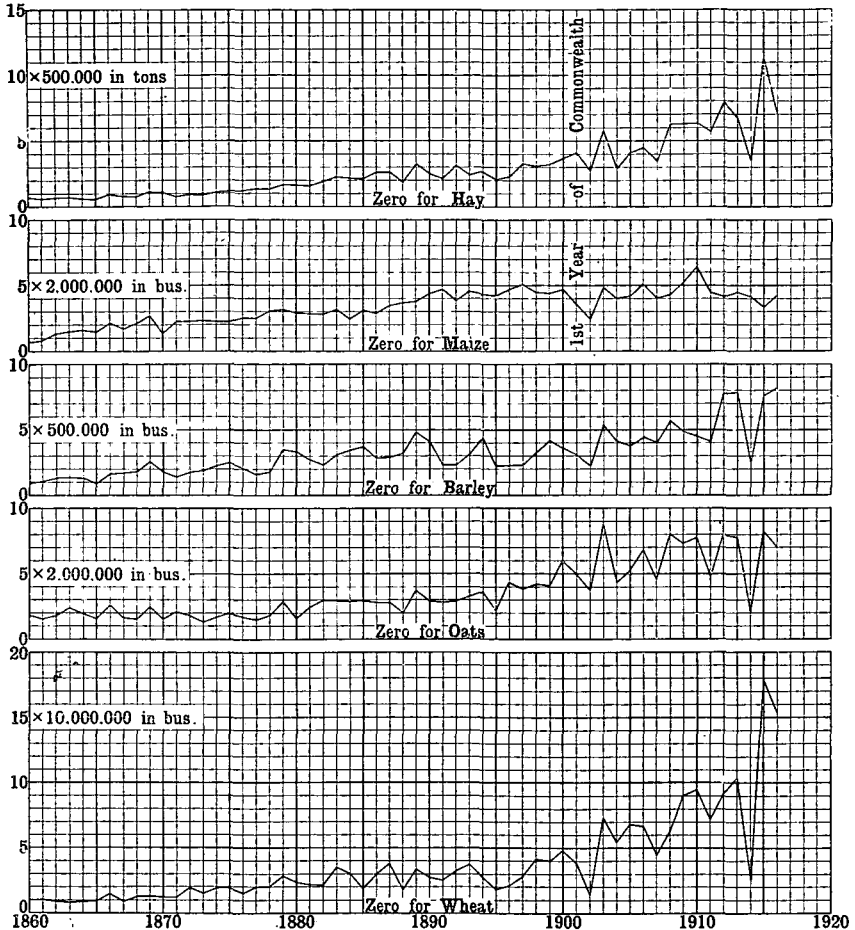
GRAPHS SHEWING THE AREA UNDER THE PRINCIPAL CROPS IN THE  
COMMONWEALTH FROM 1860-1 to 1916-17.



(See pages—for wheat, 341; oats, 351; maize, 354; barley, 358; hay, 366; sugar-cane, 371; and vineyards, 375.)

EXPLANATION OF GRAPHS.—The of base each small square represents an interval of one year, while the vertical height represents a number of acres, varying with the nature of the crop in accordance with the scale given on the left-hand of the diagram. The height of each graph above the base line denotes, for the crop to which it relates, the total area under cultivation in the Commonwealth during the successive seasons.

GRAPHS SHEWING THE PRODUCTION OF THE PRINCIPAL CROPS IN THE COMMONWEALTH FROM 1860-1 TO 1916-17.



See pages—for wheat, 341; oats, 351; maize, 354; barley, 358; and hay, 366.)

**EXPLANATION OF GRAPHS.**—In this diagram a separate base line is provided for each of the crops dealt with. In each instance the base of a small square represents an interval of one year, the vertical height of such square representing in the case of the wheat graph, 10,000,000 bushels; oats, 2,000,000 bushels; barley, 500,000 bushels; maize, 2,000,000 bushels; and hay, 500,000 tons. The height of each graph above its base line denotes the aggregate yield in the Commonwealth of that particular crop during the successive seasons.

5. **Statistics of Use of Fertilisers.**—The statistics available in connection with the use of manures in the Commonwealth for a series of years refer to all the States with the exception of Queensland; those for that State were collected for the first time for 1915-16. Particulars concerning New South Wales are given hereunder:—

**FERTILISERS USED IN NEW SOUTH WALES, 1912-13 to 1916-17.**

Season.	Total Area of Crops.	Area Manured.		Manure Used.	
		Aggregate.	Percentage on Total Area of Crops.	Natural (Stable-yard, etc.).	Artificial.
	Acres.	Acres.	%	Loads.	Tons.
1912-13 ...	3,737,085	1,642,078	43.94	170,312	38,918
1913-14 ...	4,567,592	2,224,623	48.71	166,503	50,476
1914-15 ...	4,807,001	2,329,819	48.47	168,450	55,169
1915-16 ...	5,796,376	2,753,301	47.50	177,788	56,621
1916-17 ...	5,164,434	2,352,180	45.55	166,374	50,704

Particulars for Victoria for the past five seasons are as follows:—

**FERTILISERS USED IN VICTORIA, 1912-13 to 1916-17.**

Season.	Total Area of Crops.	Farmers Using Manure.	Area Manured.		Manure Used.	
			Aggregate.	Percentage on Total Area of Crops.	Natural (Stable-yard, etc.).	Artificial.
	Acres.	No.	Acres.	%	Tons.	Tons.
1912-13 ...	4,079,356	29,524	3,029,418	74.26	222,253	94,010
1913-14 ...	4,391,321	30,610	3,401,013	77.45	219,423	105,612
1914-15 ...	4,622,759	31,874	3,728,279	80.65	209,534	117,935
1915-16 ...	5,711,265	33,378	4,336,252	75.92	187,602	128,667
1916-17 ...	4,851,335	33,165	3,870,742	79.79	181,268	117,812

During 1915-16, 25,166 acres were manured in Queensland, 43,483 loads of natural and 7,608 tons of artificial manure being used. During 1916-17, 22,145 acres were manured, 34,811 loads of natural and 6,869 tons of artificial manure were used, and the percentage of area manured on total area under crop was 3.45 for the former and 2.50 for the latter season.

The figures relating to the use of fertilisers in South Australia are shewn in the table below:—

**FERTILISERS USED IN SOUTH AUSTRALIA, 1912-13 to 1916-17.**

Season.	Total Area of Crops.	Area Manured.		Manure Used.	
		Aggregate.	Percentage on Total Area of Crops.	Natural (Stable-yard, etc.).	Artificial.
	Acres.	Acres.	%	Loads.	Tons.
1912-13 ...	3,062,998	2,603,136	84.99	111,434	91,607
1913-14 ...	3,169,559	2,584,814	81.55	100,435	97,023
1914-15 ...	3,282,364	2,722,349	82.94	103,537	96,812
1915-16 ...	3,763,570	3,112,462	82.70	90,142	102,685
1916-17 ...	3,627,477	2,872,571	79.19	101,032	96,892

Corresponding particulars relative to Western Australia for the seasons 1912-13 to 1916-17 are given in the following table:—

**FERTILISERS USED IN WESTERN AUSTRALIA, 1912-13 to 1916-17.**

Season.	Total Area of Crops.	Area Manured.		Manure Used.	
		Aggregate.	Percentage to Total Area of Crops.	Natural (Stable-yard, etc.).	Artificial.
	Acres.	Acres.	%	Loads.	Tons.
1912-13...	1,199,991	1,120,334	93.36	55,085	47,563
1913-14...	1,537,923	1,459,218	94.88	58,390	58,962
1914-15...	1,867,547	1,808,504	96.84	54,245	67,839
1915-16...	2,189,456	2,117,166	96.70	53,257	70,523
1916-17...	2,004,944	1,903,026	94.92	49,216	70,326

Statistics relating to the use of manures in Tasmania for the past five seasons are as follows:—

**FERTILISERS USED IN TASMANIA, 1912-13 to 1916-17.**

Season.	Total Area of Crops.	Area Manured.		Manure Used.	
		Aggregate.	Percentage to Total Area of Crops.	Natural (Stableyard, etc.).	Artificial.
	Acres.	Acres.	%	Tons.	Tons.
1912-13...	286,065	137,653	48.12	27,328	9,272
1913-14...	264,140	136,764	51.78	30,530	14,398
1914-15...	274,474	144,732	52.73	31,572	13,065
1915-16...	333,334	182,374	54.71	30,486	15,232
1916-17...	270,526	144,532	53.43	30,990	13,886

**6. Local Production of Fertilisers.**—Statistics relative to the local production of fertilisers are incomplete, and detailed returns for fertiliser factories other than bone mills are not available. The number of firms engaged in the manufacture of artificial manures in the Commonwealth at latest available date was 97, made up as follows:—New South Wales, 21; Victoria, 38; Queensland, 18; South Australia, 12; Western Australia, 5; and Tasmania, 3. Approximately complete returns of the quantities of fertilisers used in the various States being now available, a comparison with the imports and exports gives valuable information, but, as already mentioned, such particulars are only available for five of the States prior to 1915-16, and even then do not furnish the whole of the information necessary.

**7. Benefits Derived from the Use of Fertilisers.**—There is little doubt that the increasing use throughout the Commonwealth of fertilisers, natural and artificial, combined with the greater attention being devoted to fallowing and to the combination of sheep-farming with agriculture, is having the effect of improving the prospects of those dependent for a livelihood on the products of the soil. Reference has previously been made to the loss to the soil of phosphoric acid which the Commonwealth export of wheat and its milled products involves, and the necessity which thus

arises for returning this ingredient in some form. Similarly, other staple products exported impose their respective tolls upon the soil, and the increased use of fertilisers furnishes evidence that producers are alive to the necessity for making good the deficiency so arising.

## § 19. Ensilage.

**1. Value to Stockowners.**—The use of ensilage as a substitute for green fodder during periods of drought or spells of dry weather, or for winter use, is less extensive in Australia than the circumstances would appear to warrant. There is, however, a growing disposition on the part of dairy farmers to make silos on their holdings, as they find that dairy cattle eat ensilage greedily, and that by its means the output of milk, both in regard to quantity and quality, may be kept up long after the supply of ordinary green food is exhausted. Sheepbreeders are also recognising the fact that during protracted periods of dry weather the silo enables them to keep their stock in good condition, and that lambing can take place satisfactorily. Ensilage thus obviates the expense of travelling or trucking sheep for hundreds of miles to get beyond the drought area, or the equally costly and even ruinous alternative of providing chaff for food at high prices and costly freight. In the rearing of lambs for the London market, ensilage appears to be destined to play an important part, as the lambs thrive upon it much better than upon dry food. By the judicious economising of the surplus growth of green food with the use of the silo, farmers and squatters can carry more stock on their holdings than they otherwise would be justified in doing. Not only is the great waste of superabundant food thus avoided, but it becomes possible to change into a succulent and nutritious food much growth that in any other state would not be eaten by stock. Thus such vegetation as marsh mallows, thistles, weeds of all sorts, and even the swamp reed (*Arundo phragmites*), which grows in great quantities in lagoons, billabongs, and swamps, are all eaten with avidity when offered to stock in the form of ensilage. The pit and stack silos are rapidly being superseded by those built of red gum and hardwood or concrete. This is found to a great extent to obviate the loss sustained by mould, at the same time reducing the risk of fire. The silos vary in capacity from 40 to 130 tons. A portable silo made of iron has been devised in sections of such size and weight as to admit of ready handling. These silos can be increased in diameter or height by the addition of further sections.

**2. Government Assistance in the Production of Ensilage.**—The Government of Victoria, recognising that defective methods of making ensilage have often been adopted, has for some years been making special efforts to educate the farming community, by the issue of bulletins, lectures, etc., so that mistakes may be avoided, and the conditions essential for the production of good ensilage may be better appreciated. These conditions vary with the climate and with the locality. The Government also undertakes the erection of different types of silos on very liberal terms, repayment extending over a series of years. Experts erect the silos and give practical lessons as to packing them, etc. The New South Wales Government has, by giving advice in the "Agricultural Gazette," and by the issue of special bulletins, taken steps towards the education of the farmers. Silos also have been erected on the various experimental farms with a view to demonstrating the value of ensilage. No financial assistance is, however, given in New South Wales in this connection.

**3. Quantity Made.**—Particulars concerning the number of silos and the quantity of ensilage made in the several States of the Commonwealth in the seasons 1912-13 to 1916-17, are furnished in the following table:—



## COMMONWEALTH ENSILAGE-MAKING, 1912-13 to 1916-17.

State or Territory.	1912-13.		1913-14.		1914-15.		1915-16.		1916-17.	
	*Holdings.	Ensilage Made.	*Holdings.	Ensilage Made.	*Holdings.	Ensilage Made.	*Holdings.	Ensilage Made.	*Holdings.	Ensilage Made.
New South Wales ...	No. 144	Tons. 18,509	No. 129	Tons. 18,358	No. 83	Tons. 10,963	No. 130	Tons. 18,511	No. 119	Tons. 16,636
Victoria ...	237	17,877	270	19,505	161	9,055	269	16,356	179	10,974
Queensland ...	58	4,156	75	4,273	52	3,363	37	3,012	70	5,115
South Australia ...	28	2,200	16	778	6	681	43	1,688	20	1,795
Western Australia ...	23	479	23	658	11	403	12	518	12	278
Tasmania ...	20	424	17	662	10	231	17	849	7	114
Federal Territory ...	1	10	1	8	...	...	...	...	...	...
Northern Territory ...	...	...	...	...	...	...	...	...	1	55
Commonwealth ...	561	43,655	530	44,242	323	24,696	508	40,934	408	34,967

\* No. of holdings on which ensilage was made.

Following the drought of 1902-3 greater attention was paid to ensilage than was previously the case, and during the four seasons ended 1909-10 a continuous and fairly rapid increase was in evidence in all the States, both in the number of holdings on which ensilage was made, and in the quantity produced. The following five seasons, however, shewed a falling-off, but the reduction cannot be accepted as an indication of a lessening of appreciation of the benefits of ensilage, but rather of the fact that stocks had not been drawn upon to any great extent during the previous seasons. The accumulated stocks proved of very great value during the 1914 drought, though far below what would have been the case if more attention had been paid to ensilage-making during the previous years of surplus green food. A very substantial increase took place in 1915-16, both in the holdings on which ensilage was made and in the quantity produced, but 1916-17 returns shew a falling-off in all the States with the exception of Queensland.

## § 20. Agricultural Colleges and Experimental Farms.

1. **Introduction.**—In most of the States, agricultural colleges and experimental farms have been established with a view to promoting agriculture and to establishing improved and more scientific systems of stock-breeding and dairying. In these colleges, and on some of the farms, provision is made for the accommodation of pupils, to whom both practical and theoretical instruction is given by experts in various branches of agriculture. Analyses of soils and fertilisers are made, manures are tested, and elementary veterinary science, etc., is taught, while general experimental work is carried on with cereal and other crops, not merely for the purpose of shewing that it is practicable to produce certain crops in a given place, but also to shew how it is possible to make farming pay best in that locality. Opportunities are afforded for practice in general agricultural work, and instruction is given in the conservation of fodder; in cheese and butter making; in the management, breeding, and preparation for the market of live stock; in the eradication of pests and weeds; and in carpenters', blacksmiths', and other trades.

Travelling expert lecturers are sent to the various agricultural and dairying centres, and there is a wide distribution of periodical agricultural gazettes and bulletins on matters of importance at special seasons.

2. **Particulars of Agricultural Colleges and Experimental Farms.**—In the tables given herewith, particulars of agricultural colleges and experimental farms in the several States of the Commonwealth in 1916-17 are shewn.

**PARTICULARS OF AGRICULTURAL COLLEGES AND EXPERIMENTAL FARMS IN THE SEVERAL STATES OF THE COMMONWEALTH DURING THE SEASON 1916-17.**

Particulars.	Unit of Quantity.	New South Wales.	Vic.	Q'land.	South Aust.	West. Aust.	Tasmania.	Northern Terr.	C'with.
No. of agricultural colleges	No.	1	2	1	1	1	...	...	6
" experimental farms ...	"	23	5	5	9	6	1	2	51
" students ...	"	170	164	29	30	15	*	...	408
" hands employed ...	"	393	118	74	96	67	9	10	767
Value of plant & machinery	£	40,766	9,990	9,391	10,908	8,023	1,507	1,700	82,285
produce for year ...	"	42,731	22,600	4,033	13,992	22,508	1,200	2,000	109,064
Receipts—									
Government grant ...	"	78,446	17,583	18,085	17,167	18,658	1,736	3,229	154,904
Fees ...	"	2,049	2,049	714	1,237	364	*	...	8,403
Sales of produce, &c. ...	"	47,541	18,470	6,365	7,861	31,264	1,011	139	118,308
Other ...	"	1,843	919	...	1,672	669	529	25	...
Total receipts ...	"	131,869	39,021	25,164	27,937	50,955	3,276	3,393	281,615
Expenditure—									
Salaries, professional ...	"	8,839	5,122	3,631	4,094	473	350	650	23,159
general ...	"	53,402	12,650	5,582	8,087	9,847	1,032	1,268	91,868
Buildings & maintenance	"	21,913	14,094	15,951	7,940	5,557	107	1,474	166,586
Other ...	"	47,715	7,155	...	7,816	35,078	1,787	1	...
Total expenditure ...	"	131,869	39,021	25,164	27,937	50,955	3,276	3,393	281,615
Agriculture, &c.—									
Area under cereals for grain	Acre	2,457	2,136	355	1,875	7,069	96	150	14,138
" hay ...	"	2,576	734	454	654	737	...	90	5,245
" fruit trees, &c. ...	"	294	96	16	100	13	40	25	584
" vines ...	"	159	91	7	62	1	...	...	320
" green fodder ...	"	1,016	610	254	309	312	...	53	2,554
" root crops ...	"	81	...	24	6	6	6	5	128
" other crops ...	"	136	184	91	117	25	...	51	604
Total under crop ...	"	6,719	3,851	1,201	3,123	8,163	142	374	23,573
Area of land in fallow ...	"	1,340	1,709	112	1,916	1,864	27	231	7,199
" under artificially sown grasses	"	945	88	540	10	121	419	44	2,167
New ground broken up during season ...	"	317	47	76	...	100	...	91	631
Previously cropped land lying idle ...	"	2,984	1,737	451	1,870	9,468	...	25	16,535
Total area of arable land	"	12,305	7,432	2,380	6,919	19,716	588	765	50,105
Balance of area ...	"	29,246	4,995	14,037	7,447	135,546	90	4,670	196,031
Total area ...	"	41,551	12,427	16,417	14,366	155,262	678	5,435	246,136
Live stock—									
Horses ...	No.	740	293	220	274	221	11	173	1,993
Dairy cows ...	"	585	195	134	82	90	33	70	1,189
All other cattle ...	"	494	217	453	73	1,890	43	231	3,401
Sheep ...	"	13,093	3,520	1,954	3,250	8,062	231	50	30,160
Pigs ...	"	733	233	234	315	332	32	52	1,931
Capacity of tanks or dams ...	Gal.	33,860,995	7,900,000	235,100	824,200	†205,000	20,000	11,150	43,056,445

\* Closed temporarily to students during war. † Incomplete.

3. New South Wales.—In order to meet the demand for agricultural training, and for the purpose of conducting experiments in various branches of agriculture and of disseminating agricultural knowledge, an agricultural college and farm and twenty-three experimental farms, including two viticultural nurseries and an apiary, have been established by the New South Wales Government. Theoretical instruction in agriculture,

with practical illustrations, forms part of the curriculum of the Sydney Technical College. The School of Agriculture in the Sydney University, which has been established for seven years, is doing very satisfactory work. At the Hurlstone Continuation College there is a special course in both theoretical and practical agriculture for teachers. Instruction in "nature knowledge" is given in the State primary schools, many of which have their own experimental plots. As a means of further encouraging the study of agriculture, the Department of Public Instruction has a travelling inspector in agriculture, whose duty it is to visit the country and metropolitan schools, lecturing on the value, necessity, and advantages of agricultural knowledge, and giving practical demonstrations wherever practicable.

4. **Victoria.**—In 1884, the Agricultural Colleges Act, passed to make provision for the establishment of agricultural colleges and experimental farms in Victoria, provided for the permanent reservation from sale of 150,000 acres of Crown lands by way of endowment of agricultural colleges and experimental farms, which, together with other lands reserved as sites for such institutions prior to the passing of the Act, are vested in three trustees appointed by the Governor. Provision was made for the appointment of a Council of Agricultural Education, consisting of eleven members, five of whom are elected by the members of the Agricultural Societies of the State, five are nominated by the Governor, whilst the Secretary for Agriculture is also a member of the Council and its Treasurer. Two agricultural colleges and five experimental farms, orchards and vineyards were in existence in different parts of the State during 1916-17. There are five Agricultural High Schools under the control of the Education Department, while elementary experimental agriculture is taught at many of the State primary schools. Instruction in agriculture is also given at the technical schools at Melbourne and Bairnsdale.

5. **Queensland.**—Organised experimental agriculture in Queensland dates from the establishment of the Department of Agriculture and Stock, but such work as has been done in connection with stock-breeding, other than that carried on by private individuals, has been of later birth, and has been confined to dairy stock and draught horses. Agriculture in Queensland in the early nineties was upon the well-defined lines of the other States, so that the knowledge to be gained as to what could be profitably adapted to Queensland, with its varied climate and rainfall, covered a wide field. Instructors were appointed conversant with the different lines of agriculture, of which grain cultivation, dairying, fruit-growing, tobacco cultivation, and tropical agriculture, such as sugar, rubber and spices, are the most important. This has been followed by the establishment of an agricultural college, of farms in the temperate parts of the State, and of nurseries in the tropical parts. With wheaten grain, a system of experiments has been carried out for some years with the distinctive object of evolving a type of wheat adapted for Queensland, and as far as possible resistant to the attacks of rust. In dairying, a commencement was made by despatching to the different farming centres properly equipped travelling dairies with the latest appliances. The export of Queensland dairy produce has arisen through this effort. No travelling dairies are, however, now employed. A fruit farm has been established, at which fruits suitable for or likely to adapt themselves to the Queensland climate and conditions have been experimented with during a series of years. To cope with the insect and fungus pests to which such fruits are peculiarly susceptible, careful inspection is made of fruits in the markets and for export, and every effort is put forth to prevent the introduction of fresh diseases and to exterminate those which are already within the State.

6. **South Australia.**—To this State belongs the honour of starting the first experimental farm in the Commonwealth. As far back as the year 1879 a resolution was passed by the local Parliament in favour of the establishment of a School of Agriculture, with an experimental farm, under the charge of a professor of agriculture. Active operations in this connection were commenced in 1882, when the first series of plots of wheat were sown at Roseworthy. Experimental work, chiefly directed towards improving

the wheat yield, has been developed along three main lines, viz.: (a) the improvement of varieties of wheat, (b) the improvement of methods of cultivation, and (c) the use of manures. The Central Agricultural Bureau, established at Adelaide under the control of an Advisory Board, has an extensive membership distributed throughout the agricultural districts of the State. It assists farmers by the dissemination of knowledge; by helping to introduce new economic plants; by improving the breed of stock; and it acts as a means of keeping the Agricultural Department in touch with the producers. The branches of the bureau hold meetings at regular intervals in their several districts, ideas and methods as regards practical subjects are interchanged, and discussions are held on matters of general interest to agriculturists.

7. **Western Australia.**—A considerable amount of developmental work has been done of late years towards the promulgation of agricultural knowledge on the State agricultural college at Narrogin, on the experimental farms at Brunswick, Merredin, Denmark and Chapman and on the State farms at Avondale and Yandanooka carried on as business undertakings.

8. **Tasmania.**—In Tasmania there is a Council of Agriculture consisting of eleven members, whose duties are to collect and publish information of every kind calculated to prove beneficial to agriculturists, such as suitableness of various districts for growth or production of animal and vegetable products, information respecting plants, methods of cultivation, breeding and feeding animals, and how best to improve the same; to prevent as far as possible the introduction and spread of diseases and pests, and to publish bulletins, abstracts, and reports containing all such information as may be desirable. Other matters embrace the employment of experts in any branch of agricultural science, distribution of plants and seeds for experiment, and the establishment of local boards of agriculture in different parts of the State. Lectures are given by the experts from time to time, and useful information and knowledge is diffused by means of the monthly gazette published by the Council, and also by means of special bulletins. There is an agricultural college and State farm consisting of 678 acres, which commenced operations during 1914, but the admission of students has been temporarily suspended during the war. Practically no agricultural teaching is given in the elementary schools.

## § 21. Government Loans to Farmers.

1. **Introduction.**—All the Australian States have established systems under which financial aid is rendered to agriculturists by the Government. The principle upon which such aid is founded was probably first practically applied in Germany, in the year 1770, when the *Landschaften Bank* was created. The establishment of the *Crédit Foncier* nearly a century later in France was a creation of a similar character. This latter institution was designed to enable house and land owners to raise money on mortgage at a low rate of interest, with facility for repayment by annual instalments including redemption of the capital. It dates from 1852, but the mortgage bank known as the *Caisse Hypothécaire*, which, after a struggling existence, was finally liquidated in 1864, was based essentially on the same principle. Over the operations of the *Crédit Foncier*, created under governmental patronage and invested with such special privileges as to virtually constitute it a monopoly, the Government exercised a direct control, by appointing its governor and its two deputy-governors. The *Crédit Foncier* was empowered to lend money only on a first mortgage, and to the amount of one-half of the estimated value of houses and farms, and one-third that of vineyards, woods, and other plantations, and the commission charged could not exceed six-tenths per cent. The system developed and adopted in the Commonwealth, with the object of assisting farmers to make improvements or to develop or utilise the agricultural or pastoral resources of the land, is analogous. Particulars of advances made under the Closer Settlement and similar Acts are dealt with in the section on Closer Settlement. (See pages 272 *et seq.*)

2. **Aggregate of Transactions in each State, 1913 to 1917.**—The subjoined table gives aggregates of transactions in reference to advances to farmers in each State during the past five years :—

**STATE GOVERNMENT ADVANCES DEPARTMENTS—AGGREGATE OF LOANS TO FARMERS, 1913 to 1917. (a)**

State.	TOTAL ADVANCED TO 30TH JUNE.					BALANCE DUE AT 30TH JUNE.				
	1913.	1914.	1915.	1916.	1917.	1913.	1914.	1915.	1916.	1917.
	£	£	£	£	£	£	£	£	£	£
N.S.W.(b)...	2,423,955	3,531,263	3,918,978	4,119,842	4,281,697	1,396,336	2,297,981	2,514,078	2,513,332	2,522,674
Victoria ...	3,208,903	3,491,008	3,714,733	3,866,952	4,040,582	1,511,798	1,676,432	1,783,043	1,833,988	1,920,737
Q'nsland ...	623,498	851,600	1,147,996	1,517,040	1,810,910	470,795	636,790	880,204	1,186,895	1,428,530
S. Aust.(d)...	2,370,076	2,601,450	2,769,609	2,831,631	2,847,017	1,150,020	1,264,417	1,330,026	1,300,877	1,232,705
W. Aust. ...	2,582,937	3,089,575	3,361,158	3,533,493	3,626,658	1,883,957	2,331,959	2,561,679	2,695,550	2,753,559
Tasmania	23,915	41,004	72,252	97,776	117,027	21,089	36,965	66,572	87,106	103,152
C'wealth ...	11,233,284	13,605,900	14,984,726	15,966,734	16,723,891	6,433,995	8,244,544	9,135,602	9,617,748	9,961,357
	PROFITS FOR YEAR ENDED 30TH JUNE.					ACCUMULATED PROFITS AT 30TH JUNE.				
	£	£	£	£	£	£	£	£	£	£
N.S.W.(b)...	10,335	(c)20,946	15,111	16,633	17,477	35,684	56,630	71,741	88,374	104,898
Victoria (e)	5,203	9,100	10,102	14,900	15,623	93,209	102,309	112,411	126,411	142,064
Q'nsland (e)	3,354	2,983	4,448	6,674	f	15,223	18,206	22,654	29,328	29,328
S. Aust.(d)...	8,218	9,376	10,668	11,670	11,400	59,355	68,731	79,399	91,069	102,469
W. Aust. ...	9,783	9,607	9,363	7,706	2,894	55,675	65,282	74,645	82,351	85,245
Tasmania	472	295	712	1,278	1,238	503	798	1,509	2,787	4,025
C'wealth ...	37,365	52,307	50,404	57,961	48,632	259,649	311,956	362,359	420,320	468,029

(a) Compiled from figures furnished by the Government Savings Bank of Victoria. (b) Previous to 1914 for years ended 31st December prior. (c) For 18 months ended 30th June, 1914. (d) Includes loans to farmers and other producers and to local bodies on the security of their own rates. (e) Including profits in connection with House and similar loans. (f) Not shewn since amalgamation with Government Savings Bank. (g) See note(f).

3. **Legislation in each State.**—An account of the initial legislation in each State in reference to advances to settlers ; subsequent legislation ; security on which, and objects for which, advances were made ; amount of advances and repayments up to the end of 1911-12, etc., will be found in previous issues of the Year Book (see No. 6, pages 417-25).

4. **Particulars Respecting Agricultural and Stock Departments.**—In Year Book No. 7, 1901-1913, on pages 364 to 369, will be found particulars respecting agricultural and stock departments of the several States of the Commonwealth as on 30th June, 1913. The main features of organisation are set out under their respective headings, and will be found to embrace such items as the number on staffs, expenditure, facilities for agricultural education and work undertaken in agricultural colleges, technical schools, experimental farms and orchards and vineyards. The nature of lectures and other forms of agricultural instruction by experts is dealt with, as well as the extent of distribution of plants, and the special steps taken by the departments to disseminate information amongst agriculturists, and also to facilitate placing the products of the State on the market.

## § 22. Graphical Representation of Crops.

1. **Areas of Principal Crops.**—A graphical representation of the areas devoted to each of the principal crops in the Commonwealth for the period 1860-1916 will be found on page 387. The crops so represented are as follows :—Wheat, hay, oats, maize, sugar-cane, barley, and vines.

2. **Production.**—On page 388 will be found a graphical representation of the aggregate yields in the Commonwealth since 1860 of wheat, oats, barley, maize, and hay.

## SECTION IX.

## FARMYARD AND DAIRY PRODUCTION.

## § 1. Introductory.

1. **General.**—The introduction of cattle into Australia, and the early history of the dairying industry are referred to in some detail in previous issues of this work (see Official Year Book No. 6, pp. 430 *et seq.*). It may here be noted that the original stock has been crossed with specially imported stud cattle, while further judicious crossing of strains has resulted in an increased and improved milk supply. In Australia, dairy cattle thrive in the open throughout the year, local climatic conditions demanding no protection other than tree plantations for shelter, and rugging in the coldest weather. Indigenous and imported grasses furnish food during the greater part of the year, and winter fodder, when necessary, is given to the cattle in the fields. With the adoption of scientific methods in the treatment of animals and pasturage and in the processes of manufacture, coupled with effective State supervision, the dairying industry has shewn rapid expansion.

2. **Official Supervision of Industry.**—Dairy experts, under the supervision of the various State Agricultural Departments, give instruction in approved methods of production, and inspect animals, buildings, and marketable produce. A high standard of cleanliness, both of *personnel* and *matériel*, prevails. Financial assistance of a temporary nature is also given, advances made being generally repaid with promptitude.

The export trade is regulated by the terms of the Commonwealth Commerce Act 1905 and regulations thereunder. The provisions of this Act are set out in detail in Official Year Book No. 6, pp. 431-2. It will be sufficient to note here that true trade description, etc., must be marked on all produce intended for export, while official inspection ensures the maintenance of purity and quality. Upon request of the exporter the goods are certificated by the inspector.

3. **Mixed Farming.**—Dairying is not now, as formerly, wholly confined to farmers, since many graziers in a large way of business have lately given it their attention. In non-coastal regions it is generally carried on in conjunction with agriculture and sheep-raising, sufficient fodder being grown to carry the cattle through the winter months. Local wants are thus met, and in many places remote from the metropolis well-equipped factories have been established.

4. **Factory System.**—Cream separation and butter-making are often carried on together under the co-operative system. The creation of large central butter factories, supplied by numerous separating establishments or "creameries," has resulted in a considerable reduction in the cost of manufacture, since improved appliances, such as refrigerators, may be profitably worked at the larger establishments. The product is also of a more uniform quality. The number of farmers who adhere to hand processes is rapidly diminishing. Formerly the average quantity of milk used per pound of hand-made butter was about 3 gallons, but separator butter requires less than 2½ gallons.

5. **Butter and Cheese Factories.**—The establishments in the Commonwealth where the manufacture of butter, cheese, and condensed milk was carried on, numbered 557 in 1916. These were distributed as regards the various States as follows:—New South Wales, 167; Victoria, 190; Queensland, 122; South Australia, 44; Western Australia, 3; Tasmania, 31.

## § 2. Milk, Butter, and Cheese.

1. **Dairy Herds.**—Following the drought year 1902 there was up to 1911 a general increase in the number of dairy cows; the returns for 1912 and the four years following, however, shew a decrease in all the States, with the exception of Western Australia. In New South Wales, Victoria, South Australia, and Tasmania—as will be seen from the table given below—the proportion of dairy cattle to all cattle is high. In Queensland, the Northern Territory, and Western Australia there is a greatly preponderating number of other cattle, dairying not being firmly established in the tropical regions of the Continent. In southern Queensland, however, the industry has developed remarkably during the last decade. The figures for the Northern Territory are rough estimates only:—

### CATTLE AND DAIRY CATTLE, COMMONWEALTH, 1912 to 1916.

State.			1912.	1913.	1914.	1915.	1916.
New South Wales	...	All Cattle	3,033,726	2,815,113	2,472,631	2,400,104	2,757,713
	...	Dairy Cows	821,315	789,474	769,550	743,058	742,544
Victoria	...	All Cattle	1,508,089	1,528,553	1,362,542	1,043,604	1,175,098
	...	Dairy Cows	655,939	656,080	610,517	451,086	488,086
Queensland	...	All Cattle	5,210,891	5,322,033	5,455,943	4,780,893	4,765,657
	...	Dairy Cows	375,660	391,439	387,311	335,243	343,311
South Australia	...	All Cattle	383,418	352,905	300,579	226,565	288,887
	...	Dairy Cows	114,734	107,879	91,181	78,515	86,311
Western Australia	...	All Cattle	806,294	834,265	863,835	821,048	863,930
	...	Dairy Cows	27,310	30,680	28,106	28,342	33,788
Tasmania	...	All Cattle	222,181	205,743	176,524	169,575	179,360
	...	Dairy Cows	60,160	59,380	51,229	47,540	52,522
Northern Territory	...	All Cattle	405,552	417,643	414,558	483,961	420,362
	...	Dairy Cows	300	70	70	70	70
Federal Territory	...	All Cattle	7,108	7,627	4,961	5,666	8,230
	...	Dairy Cows	725	715	870	537	719
Commonwealth	...	All Cattle	11,577,259	11,483,882	11,051,573	9,931,416	10,459,237
	...	Dairy Cows	2,056,143	2,035,717	1,938,834	1,684,393	1,747,351

2. **Milk.**—The annual quantity of milk produced per dairy cow varies greatly with locality and season, probably reaching as high as 500 gallons, but averaging for the whole of Australia, for all dairy cows and for all seasons, prior to 1916, considerably under 300 gallons per annum. For 1916 the average yield in Victoria, South Australia and New South Wales was over that quantity, being 397; 363; and 304 gallons respectively, while the average for the Commonwealth as a whole for 1916 was 320 gallons. The best yields over a series of years appear to be in Victoria, New South Wales, and South Australia, while Queensland and Tasmania in normal years are above Western Australia. In the following table the annual average yields per cow for the last five years are taken from the number of dairy cows which were, during any part of the year, milking. The average given is considerably below that for cows which were yielding during the greater part of the year. It will be seen that the highest averages obtain in those States which have adopted more scientific methods of dairying, such as systematic breeding, culling of herds, milk testing, etc.

## PRODUCTION OF MILK, COMMONWEALTH, 1912 to 1916.

Heading.	N.S.W.	Victoria.	Q'land.	S. Aust.	W Aust	Tas.	Fed. Ter.	C'with. †
1912—								
Dairy Cows* ... No.	838,620	677,747	366,378	118,268	27,525	58,509	959	2,088,006
Production 1000 gals.	225,339	199,297	82,978	27,549	5,216	15,040	107	555,525
Aver. per cow gals.	269	294	226	233	189	257	111	266
1913—								
Dairy Cows* ... No.	805,395	656,009	383,550	111,306	28,995	59,770	720	2,045,745
Production 1000 gals.	231,503	216,948	90,545	27,393	5,550	11,557	89	583,785
Aver. per cow gals.	287	331	236	248	191	193	124	285
1914—								
Dairy Cows* ... No.	779,512	633,298	389,375	99,530	29,393	55,305	792	1,987,205
Production 1000 gals.	237,856	193,653	100,190	22,220	5,589	11,568	74	571,150
Aver. per cow gals.	305	306	257	223	190	209	93	287
1915—								
Dairy cows* ... No.	756,304	530,802	361,277	84,848	28,224	49,385	704	1,811,544
Production 1000 gals.	183,935	142,115	70,094	22,185	6,059	10,300	79	434,767
Aver. per cow gals.	243	268	194	261	215	209	113	240
1916—								
Dairy cows* ... No.	742,801	469,587	339,277	82,413	31,065	50,031	628	1,715,802
Production 1000 gals.	225,920	186,593	86,938	29,954	6,825	13,364	84	549,679
Aver. per cow gals.	304	397	256	353	220	267	134	320

\* Mean for the year.

† Exclusive of Northern Territory.

3. **Butter and Cheese.**—The butter output shews, in general, a tolerably steady increase since the drought year 1902, the most marked development being in Queensland. The production of butter reached its highest figures in 1911, the next highest yields being in 1913 and 1914. The year 1916 marks the highest cheese production, the return being nearly 20 per cent. in advance of that of 1914, the next highest record, which was 7½ per cent. in advance of 1913, the previous highest record. In both butter and cheese a decrease took place in some of the States in 1907, 1908, 1914 and 1915, due to the dryness of the seasons. For the five years from 1912 to 1916 the figures are:—

## PRODUCTION OF BUTTER AND CHEESE, COMMONWEALTH, 1912 to 1916.

State.	1912.	1913.	1914.	1915.	1916.
<b>BUTTER.</b>					
New South Wales ...	76,592,967	77,766,703	*84,126,893	*59,623,885	*79,355,639
Victoria ...	67,655,834	73,381,567	62,421,288	42,345,113	*59,568,771
Queensland ...	30,307,339	35,199,387	37,230,240	25,456,714	28,967,279
South Australia ...	8,394,557	8,036,274	6,252,061	6,317,613	9,798,142
Western Australia ...	448,799	518,566	451,112	716,408	1,080,466
Tasmania ...	3,778,104	3,843,247	3,450,531	3,204,922	3,691,649
Federal Territory ...	16,561	12,494	*7,387	*7,658	*8,832
Commonwealth ...	187,194,161	198,758,238	193,970,412	137,672,313	182,470,778
<b>CHEESE.</b>					
New South Wales ...	5,454,685	6,620,648	*6,356,627	*5,979,636	*7,830,239
Victoria ...	4,176,778	4,856,321	4,395,502	3,497,278	*5,869,562
Queensland ...	3,947,615	5,395,050	7,931,869	4,383,410	8,495,825
South Australia ...	1,953,027	2,216,985	2,000,547	1,412,692	*2,476,081
Western Australia ...	...	...	1,675	835	665
Tasmania ...	623,386	654,411	554,191	555,375	736,500
Commonwealth ...	16,160,491	19,743,415	21,240,411	15,829,226	25,408,873

\* For year ended 30th June of year following.



4. **Concentrated Milk.**—"Condensed" or "concentrated" milk denotes milk the bulk of which is reduced by evaporation. Small quantities of such milk were made prior to 1911, in which year the output for the Commonwealth was nearly doubled. In 1912 there was a further large increase, which was well maintained during the two following years. During 1915 a considerable falling-off was in evidence in each of the three States; this, however, was more than compensated for during the following year, a substantial increase occurring in each State, the Victorian returns shewing an increase of nearly 100 per cent. on the 1915 output. There is still a considerable import of milk, as will be seen from the tables hereunder; but in each year, with the exception of 1915-16, the balance of trade was in favour of exports. No condensed or concentrated milk is made in South Australia, Western Australia, or Tasmania. In New South Wales, Victoria, and Queensland the following are the returns for the last five years:—

#### CONDENSED AND CONCENTRATED MILK, 1912 to 1916.

Year.	N.S.W.	Victoria.	Queensland.	Commonwealth..
	lbs.	lbs.	lbs.	lbs.
1912 ... ..	3,636,519	18,500,011	7,923,381	30,059,911
1913 ... ..	3,682,812	20,942,620	8,059,051	32,684,483
1914 ... ..	*5,991,458	19,093,750	6,967,486	32,052,694
1915 ... ..	*4,918,064	16,690,426	5,368,510	26,977,000
1916 ... ..	*5,829,990	*33,280,635	6,584,272	45,694,897

\* For year ended 30th June of year following.

5. **Oversea Trade in Milk, Butter, and Cheese.**—The following tables give the imports, exports, and net exports or imports of butter, cheese, and milk. In each of the five years, exports of butter exceeded imports, but in 1912 and 1915-16 the cheese import was greater than the export, while there was a net import of milk in 1915-16.

#### IMPORTS, EXPORTS, AND NET EXPORTS OF BUTTER, CHEESE, AND MILK, COMMONWEALTH, 1912 to 1916-17.

##### IMPORTS.

Products.	1912.	1913.	1914-15.	1915-16.	1916-17.
Butter ... .. lbs.	44,142	13,844	2,378,893	4,577,332	517,091
" " " " " £	1,989	565	180,557	349,110	38,749
Cheese ... .. lbs.	443,847	364,699	230,348	1,532,336	86,035.
" " " " " £	19,988	17,334	10,554	66,936	5,536
Milk—concentrated and preserved* lbs.	1,215,351	1,150,715	2,596,964	4,191,493	1,607,445
" " " " " £	25,949	26,579	90,146	152,051	63,713.

##### EXPORTS.

Butter ... .. lbs.	66,685,056	75,802,303	54,105,777	18,036,317	75,361,869.
" " " " " £	3,342,642	3,565,282	2,664,975	1,117,629	5,338,848
Cheese ... .. lbs.	146,022	1,609,452	2,547,857	159,003	10,586,456
" " " " " £	5,760	42,421	72,828	9,347	420,600.
Milk—concentrated and preserved* lbs.	1,821,583	2,875,030	5,066,169	939,660	16,453,839
" " " " " £	37,876	75,165	126,556	31,340	553,993.

##### NET EXPORTS.†

Butter ... .. lbs.	66,640,914	75,788,459	51,726,884	13,458,985	74,844,778.
" " " " " £	3,340,653	3,564,717	2,494,418	768,519	5,300,099
Cheese ... .. lbs.	— 297,825	1,244,753	2,317,509	— 1,373,333	10,500,421
" " " " " £	— 14,228	25,087	62,274	— 57,589	415,064
Milk—concentrated and preserved* lbs.	606,232	1,724,315	2,469,205	— 3,251,833	14,346,394.
" " " " " £	11,927	43,586	36,410	— 120,711	490,280

\* See definition above. † i.e., excess of exports over imports. The minus sign — signifies net imports.

6. **Local Consumption of Butter and Cheese.**—The total production of butter and cheese, with the net export or import for the corresponding period subtracted or added, gives approximately the quantity available for consumption in the Commonwealth. In the period considered hereunder, with the exception of the years 1912 and 1915, the local supply of cheese was adequate :—

**BUTTER AND CHEESE FOR LOCAL CONSUMPTION, 1912 to 1916.**

Product.			1912.	1913.	1914.	1915.	1916.
			lbs.	lbs.	lbs.	lbs.	lbs.
Butter	... Total	...	120,500,247	122,969,779	137,820,074	124,213,328	107,626,000
"	... Per head of mean population	...	25.9	25.6	28.0	25.1	21.93
Cheese	... Total	...	16,458,316	18,498,662	19,194,818	17,202,559	14,908,451
"	... Per head of mean population	...	3.5	4.8	3.9	3.5	3.04

The quantity available for consumption in 1916 averaged nearly 22 lbs. of butter and over 3 lbs. of cheese per head of mean population, an amount probably unsurpassed anywhere. The consumption of butter and cheese in the United Kingdom in normal times is given as about 20 lbs. per head per annum.

### § 3. Pigs, Bacon, etc.

1. **Pigs.**—Attention has been paid, both privately and by the various State Governments, to improving the breed, and consequently the market value of pigs. The number of pigs in the Commonwealth from 1912 to 1916 is shewn below :—

**NUMBER OF PIGS, COMMONWEALTH, 1912 to 1916.**

State.	1912.	1913.	1914.	1915.	1916.
New South Wales ...	293,450	287,896	*286,478	*280,869	*359,504
Victoria† ...	240,072	221,277	243,196	192,002	254,436
Queensland ...	143,695	140,045	166,638	117,787	129,733
South Australia ...	69,832	64,119	69,893	66,237	*118,542
Western Australia ...	47,351	47,966	59,816	58,231	90,756
Tasmania† ...	49,152	37,990	34,960	37,778	53,033
Northern Territory ...	1,500	1,018	1,240	500	500
Federal Territory ...	203	194	*226	*289	*259
Commonwealth ...	845,255	800,505	862,447	753,693	1,006,763

\* As on 30th June of year following.

† As on 1st March of year following.

The number of pigs in Australia was highest in 1911, and the next to that was in 1904, when for the first time it was over a million. An examination of the returns shews remarkable fluctuations. There was a general decrease in 1906 and the two following years, followed by an increase in 1909-10-11, a heavy decline in 1912 and 1913, an increase in 1914 and again a heavy falling-off during 1915, followed by a very substantial rise in all the States in 1916. The number of pigs per head of population, and the number per square mile, will be found in the tables of live stock, pages 306 and 307.

2. **Bacon and Ham.**—From 1905 to 1908 the production of bacon and ham in the Commonwealth shewed little annual variation. In 1909, however, there was a considerable falling-off, but a large increase took place in subsequent years up to 1912. During

the succeeding three years the production again fell away, more especially in 1915, but a satisfactory increase was recorded in 1916 in all the States with the exception of Queensland.

### PRODUCTION OF BACON AND HAM, COMMONWEALTH, 1912 to 1916.

State.	1912.	1913.	1914.	1915.	1916.
	lbs.	lbs.	lbs.	lbs.	lbs.
New South Wales ...	16,511,180	15,180,378	*15,323,528	*13,569,022	*15,779,369
Victoria ...	20,043,706	19,289,258	18,774,497	13,659,974	*18,115,028
Queensland ...	12,437,019	13,709,716	13,339,131	12,363,939	10,427,649
South Australia ...	3,771,064	3,265,773	3,409,372	2,442,485	*3,993,137
Western Australia ...	†114,950	†100,143	†112,421	†202,824	†2,058,027
Tasmania† ...	1,299,060	1,116,535	1,612,433	895,020	992,779
Federal Territory ...	15,196	11,885	3,520	7,619	*8,787
Commonwealth ...	54,192,175	52,673,688	52,574,902	43,130,883	51,374,776

\* For year ended 30th June of year following. † Made on farms only. ‡ A portion only from pigs slaughtered in the State, balance imported and subsequently cured.

3. **Oversea Trade in Pig Products.**—The oversea trade in pigs and pig products is shewn in the following tables:—

### IMPORTS, EXPORTS, AND NET EXPORTS OF BACON AND HAM, FROZEN PORK, PIGS, AND LARD, COMMONWEALTH, 1912 to 1916-17.

Particulars.	1912.	1913.	1914-15.	1915-16.	1916-17.
<b>BACON AND HAM.</b>					
Imports ...	lbs. 294,130	126,692	107,520	425,277	90,626
" ...	£ 11,962	6,301	5,412	20,643	4,787
Exports ...	lbs. 2,174,114	1,866,894	1,220,426	590,788	1,006,431
" ...	£ 68,503	74,718	58,900	35,278	60,414
Net Exports ...	lbs. 1,879,984	1,740,202	1,112,906	165,511	915,805
" ...	£ 56,541	68,417	53,488	14,635	55,627
<b>FROZEN PORK.</b>					
Imports ...	lbs. 79,052	...	74,337	862,768	73,294
" ...	£ 2,592	...	2,601	32,249	2,680
Exports ...	lbs. 897,929	215,175	48,791	2,783	32,681
" ...	£ 16,661	5,259	1,400	108	1,341
Net Exports ...	lbs. 818,877	215,175	— 25,546	— 859,985	— 40,613
" ...	£ 14,069	5,259	— 1,201	— 32,141	— 1,339
<b>PIGS.</b>					
Imports ...	No. 14	20	52	12	6
" ...	£ 198	54	535	63	23
Exports ...	No. 609	440	168	64	19
" ...	£ 1,025	1,336	511	582	146
Net Exports ...	No. 595	420	116	52	13
" ...	£ 827	1,282	— 24	519	123

Note. — signifies net imports.

## IMPORTS, EXPORTS, AND NET EXPORTS OF BACON AND HAM, FROZEN PORK, PIGS, AND LARD, COMMONWEALTH, 1912 to 1916-17—Continued.

Particulars.	1912.	1913.	1914-15.	1915-16	1916-17.
LARD.					
Imports ... .. lbs.	794,961	884,312	268,043	3,873,248	408,552
" ... .. £	22,096	23,900	7,433	108,985	12,225
Exports ... .. lbs.	2,092,422	4,299,987	1,491,119	342,593	1,796,821
" ... .. £	37,063	85,194	31,542	13,736	59,205
Net Exports ... .. lbs.	1,297,461	3,415,175	1,223,106	-3,530,655	1,588,269
" ... .. £	14,967	61,294	24,109	-95,249	46,980

Note. — signifies net imports.

From 1901 to 1903 there was a considerable net import of bacon and ham, but for the following years, up to 1916-17, with the exception of 1915-16 when the figure was small, there was a large net export. The local production of pork and lard for each of the years 1911 to 1913 was more than sufficient for the local demand; during 1914-15, 1915-16, and 1916-17, however, the imports of frozen pork exceeded the exports by 25,546 lbs., 859,985 lbs. and 40,613 lbs. respectively. The net export of pig products was considerably greater in 1910 and 1911 than in previous years, but there was a decline in 1912, and a further falling-off in the three subsequent years, followed by an increase during 1916-17.

4. Local Consumption of Bacon and Ham.—From 1904 to 1916 the production of bacon and ham was sufficient to meet the local demand, and there was a surplus for export.

## BACON AND HAM AVAILABLE FOR LOCAL CONSUMPTION, 1912 to 1916.

Consumption.	1912.	1913.	1914.	1915.	1916.
	lbs.	lbs.	lbs.	lbs.	lbs.
Total ... ..	52,312,191	50,933,486	51,181,876	42,965,372	50,458,971
Per head of mean population ...	11.3	10.6	10.4	8.7	10.3

5. Total Dairy Production.—The total dairy production of the Commonwealth in 1916 is shewn below:—

## TOTAL DAIRY PRODUCTION, COMMONWEALTH, 1916.

Where Produced.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Fed. Terr.	C'wealth.
MILK.								
Used for—	gallons.	gallons.	gallons.	gallons.	gallons.	gallons.	gals.	gallons.
Butter ... ..	178,709,835	137,282,655	67,378,415	21,865,757	2,652,216	9,228,897	25,064	417,142,839
Cheese ... ..	8,033,900	5,722,855	8,395,320	2,463,466	1,775	738,521	...	25,355,839
Condensing and concentrating ...	1,693,340	10,888,950	1,964,278	...	...	...	...	14,546,568
Other purposes... ..	37,482,513	32,698,446	9,200,367	5,624,780	4,171,579	3,396,422	59,348	92,639,455
Total ... ..	225,919,588	186,592,906	86,938,360	29,954,005	6,825,570	13,363,840	84,412	549,684,701
BUTTER.								
In Factories ... ..	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
On Dairy & other Farms	75,064,394	54,488,363	26,924,423	6,067,508	357,600	2,136,649	...	165,038,927
	4,291,255	5,080,408	2,042,856	3,730,634	722,866	1,555,000	8,832	17,431,851
Total ... ..	79,355,639	59,568,771	28,967,279	9,798,142	1,080,466	3,691,649	8,832	182,470,778

\* For year ended 30th June, 1917.

† Including 6000 gallons, Northern Territory.

## TOTAL DAIRY PRODUCTION, COMMONWEALTH, 1916—Continued.

Where Produced.	N.S.W. *	Victoria. *	Q'land.	S. Aust. *	W. Aust.	Tas.	F. Ter. *	C'wealth.
CHEESE.								
In Factories ...	lbs. 5,672,428	lbs. 4,188,633	lbs. 8,423,920	lbs. 2,474,309	lbs. ...	lbs. 448,671	lbs. ...	lbs. 21,207,961
On Dairy & other Farms	2,157,811	1,680,929	71,905	1,772	665	287,929	...	4,200,911
Total ...	7,830,239	5,869,562	8,495,825	2,476,081	665	736,500	...	25,408,872

## CONDENSED OR CONCENTRATED MILK.

In Factories ...	lbs. 5,829,990	lbs. 33,280,635	lbs. 6,584,272	...	...	...	...	lbs. 45,694,897
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## BACON AND HAM.

In Factories ...	lbs. 13,560,366	lbs. 15,376,600	lbs. 9,738,283	lbs. 2,597,711	lbs. 1,851,704	lbs. 641,217	lbs. ...	lbs. 43,765,881
On Dairy & other Farms	2,219,003	2,738,428	689,366	1,395,426	206,323	351,562	8,787	7,608,895
Total ...	15,779,369	18,115,028	10,427,649	3,993,137	2,058,027	992,779	8,787	51,374,776

\* For year ended 30th June, 1917. † A portion only from pigs slaughtered in the State, the balance being imported and subsequently cured.

## § 4. Poultry Farming.

1. **Development of the Industry.**—Poultry stocks are largely maintained by farmers, and production therefrom furnishes a considerable addition to the annual agricultural or dairying returns. During recent years, however, poultry-keeping has assumed an independent position among rural industries, while it is also carried on in conjunction with pig farming. Special poultry farms have been instituted for scientific breeding, and poultry experts engaged by the State Governments give lectures and instruction. Poultry for consumption is extensively reared, and the egg-producing qualities of the birds have also been greatly improved by careful breeding. Co-operative egg-collecting circles have been formed in some districts; eggs are also delivered with the milk and cream to the local butter factories, and thence forwarded to market.

2. **Production of Poultry.**—There is some difficulty in obtaining correct figures for the yield of poultry products. The following values are returned:—

## ESTIMATED VALUE OF POULTRY AND EGGS, COMMONWEALTH, 1912-13 to 1916-17.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas. *	Fed. Ter.	C'wealth.
	£	£	£	£	£	£	£	£
1912-13 ...	1,432,120	1,825,010	188,000	541,489	183,689	230,000	1,880	4,402,188
1913-14 ...	1,578,000	1,706,700	219,400	569,254	223,713	230,000	1,600	4,528,667
1914-15 ...	1,597,000	1,743,860	234,994	524,347	204,591	230,000	1,180	4,535,972
1915-16 ...	2,144,000	1,747,000	107,370	518,808	184,360	200,000	2,000	4,903,538
1916-17 ...	1,905,500	1,714,770	324,958	618,441	201,284	250,000	2,500	5,017,453

\* Estimated.

3. **Overseas Trade in Poultry Products.**—The imports and exports of eggs shew a considerable balance on the side of imports in each of the years 1901 to 1906 and during the last eight years. In 1907 the export greatly exceeded the import, and in 1908 the

imports were greater in quantity, but less in value, than the exports. During 1915-16, 303,300 dozen eggs were imported from Hong Kong, 240,167 dozen from China, and 99,372 dozen from Japan. Of the 35,762 dozen imported during 1916-17, 31,388 came from Hong Kong, and 2521 dozen from Straits Settlements. There is at present only a small oversea trade in either live or frozen poultry, the values of the net exports during 1916-17 being £2396 and £3767 respectively.

**IMPORTS, EXPORTS, AND NET EXPORTS OF EGGS AND OF LIVE AND FROZEN POULTRY, COMMONWEALTH, 1912 to 1916-17.**

Particulars.				1912.	1913.	1914-15.	1915-16.	1916-17.
EGGS.								
Imports	...	...	... doz.	45,160	53,577	63,065	649,399	35,762
"	...	...	... £	1,464	1,748	2,431	27,791	1,485
Exports	...	...	... doz.	6,211	4,872	12,119	3,541	8,651
"	...	...	... £	518	377	735	262	585
Net Exports	...	...	... doz.	-38,949	-48,705	-50,946	-645,858	-27,111
"	"	...	... £	- 946	- 1,371	- 1,696	-27,529	900
EGG CONTENTS.								
Imports	...	...	... lbs.	13,969	13,712	9,665	37,421	20,452
"	...	...	... £	1,206	1,110	1,138	4,486	3,480
Exports	...	...	... lbs.	*	*	*	*	*
"	...	...	... £	4	15	31	481	14,259
Net Exports	...	...	... lbs.	*	*	*	*	*
"	...	...	... £	- 1,202	- 1,095	- 1,107	-4,005	10,779
LIVE POULTRY.								
Imports	...	...	... No.	1,720	1,725	1,262	931	480
"	...	...	... £	1,460	913	1,857	1,107	1,127
Exports	...	...	... No.	3,859	2,480	1,164	1,959	3,105
"	...	...	... £	1,231	1,074	603	781	3,523
Net Exports	...	...	... No.	2,139	755	— 98	1,028	2,625
"	"	...	... £	— 229	161	- 1,254	— 326	2,396
FROZEN POULTRY.								
Imports	...	...	... lbs.	2,102	10,328	1,193	6,643	3,096
"	...	...	... £	64	475	53	293	137
Exports	...	...	... pair	23,390	25,520	14,765	2,155	5,400
"	...	...	... £	10,144	10,979	12,496	1,050	3,904
Net Exports	...	...	...	*	*	*	*	*
"	"	...	... £	10,080	10,504	12,443	757	3,767

Note. — signifies net imports. \* Quantity not available.

## § 5. Bee Farming.

1. **The Bee-farming Industry.**—Bee farming, like poultry farming, is ordinarily an adjunct to agricultural or dairying industries. The returns of honey from productive hives during 1916-17 gave an average of just under 50 lbs. per hive, while the average quantity of wax was about three-quarters of a pound per hive.

The value of the export of honey from Australia was only £1924 in 1912, £4094 in 1913, £2589 in 1914-15, and £1045 in 1915-16, but in 1916-17 the value aggregated £9526. It is believed that this export could be considerably increased. Australian honey exhibited at the Franco-British Exhibition in London in 1908 obtained the highest award.

2. **Production of Honey and Beeswax.**—The particulars of honey and beeswax production are as given in the following table :—

**NUMBER OF HIVES AND PRODUCTION OF HONEY AND BEESWAX, SEASON 1916-17.**

State.	Bee Hives.			Honey Produced.		Beeswax Produced.	
	Productive	Un-productive.	Total.	Quantity.	Value.	Quantity.	Value.
	No.	No.	No.	lbs.	£	lbs.	£
New South Wales	33,239	7,421	40,660	1,660,518	31,013	29,387	1,897
Victoria	26,238	10,323	36,561	1,547,023	32,230	22,131	1,890
Queensland	9,062	5,283	14,345	352,099	5,680	7,042	441
South Australia	17,049	3,147	20,196	961,723	18,032	9,793	632
Western Australia	5,807	1,526	7,333	184,910	2,736	3,985	249
Tasmania	4,650	2,485	7,135	84,121	2,213	2,059	146
Federal Territory	78	33	111	4,780	87	47	3
Commonwealth	96,123	30,218	126,341	4,795,174	91,991	74,444	5,258

**QUANTITY OF HONEY AND BEESWAX PRODUCED, 1912-13 to 1916-17.**

Season	N. S. Wales.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania	Fed.Ter.	C'wealth.
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**HONEY.**

	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
1912-13	2,390,355	3,277,590	581,228	1,446,364	292,515	*	19,645	8,007,697†
1913-14	1,862,471	1,961,746	754,760	876,395	156,162	180,472	4,364	5,796,370
1914-15	1,138,925	700,672	542,679	1,033,556	344,054	37,858	4,680	3,802,424
1915-16	1,585,634	933,933	460,599	358,469	122,125	56,468	4,750	3,521,978
1916-17	1,660,518	1,547,023	352,099	961,723	184,910	84,121	4,780	4,795,174

**BEESWAX.**

1912-13	49,267	45,354	11,744	18,054	6,073	*	467	130,959†
1913-14	39,060	37,323	12,059	11,607	3,910	4,630	184	108,773
1914-15	26,483	20,017	10,859	14,365	5,471	1,354	193	78,742
1915-16	29,874	18,707	8,890	7,410	4,584	1,397	45	70,907
1916-17	29,387	22,131	7,042	9,793	3,985	2,059	47	74,444

\* Not available. † Exclusive of Tasmania.

The quantity of honey and beeswax produced from year to year naturally varies considerably according to the conditions of the seasons. During the past five years, New South Wales has been the largest producer, accounting for 33 per cent. of the total honey produced in the Commonwealth, and 37½ per cent. of the beeswax; Victoria, the next in importance, produced about 32½ per cent. of the honey, and 31 per cent. of the beeswax; South Australia, Queensland, and Western Australia coming next in the order named.

3. **Oversea Trade in Bee Products.**—In normal years honey is produced in the Commonwealth in sufficient quantities to supply all local requirements, and a considerable quantity is sent oversea. The more general use of frame hives in recent years has affected the production of wax, and as a result the quantity imported has exceeded that exported during each of the past three years.

**IMPORTS, EXPORTS, AND NET EXPORTS OF HONEY AND BEESWAX,  
COMMONWEALTH, 1912 to 1916-17.**

Particulars.				1912.	1913.	1914-15.	1915-16.	1916-17.
<b>HONEY.</b>								
Imports	...	...	... lbs.	5,024	636	1,790	59,324	491
"	...	...	... £	89	19	51	692	18
Exports	...	...	... lbs.	135,318	284,322	151,405	25,162	333,407
"	...	...	... £	1,924	4,094	2,589	1,045	9,526
Net Exports	...	...	... lbs.	130,294	283,686	149,615	34,162	332,916
"	"	...	... £	1,835	4,075	2,538	353	9,508
<b>BEESWAX.</b>								
Imports	...	...	... lbs.	7,212	6,059	13,048	38,807	19,195
"	...	...	... £	536	480	1,013	2,868	1,544
Exports	...	...	... lbs.	9,453	10,455	2,173	3,506	7,234
"	...	...	... £	581	657	154	234	548
Net Exports	...	...	... lbs.	2,241	4,396	10,875	35,301	11,961
"	"	...	... £	45	177	859	2,634	996

Note. — signifies net imports.

**§ 6. Summary of Australian Farmyard and Dairy Products.**

The value of the principal farmyard and dairy products raised in the Commonwealth in 1916 was as follows:—

**VALUE OF THE PRINCIPAL FARMYARD AND DAIRY PRODUCTS IN THE  
COMMONWEALTH DURING THE YEAR 1916.**

Produce.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aus.	Tas.	N. T.	Fed. Ter.	C'wealth.
	£	£	£	£	£	£	£	£	£
Milk, cons'm'd									
as such ...	1,250,000	1,090,000	307,000	187,000	139,000	113,000	*	2,000	3,088,000
Butter ...	5,137,287	4,224,910	1,857,488	677,792	77,560	226,587	*	550	12,202,174
Cheese ...	288,525	222,977	303,545	77,391	25	28,874	...	...	921,337
C'condensed milk	125,120	766,160	175,902	...	...	...	...	...	1,067,182
Bacon & ham	745,952	1,057,660	553,704	200,886	118,670	50,575	*	450	2,727,897
Poultry & eggs	1,905,500	1,714,770	324,958	618,441	201,284	250,000	*	2,500	5,017,453
Honey & wax	32,910	34,120	6,121	18,664	2,985	2,359	*	90	97,249

\* Information not available.

† Estimate.



### § 7. Summary of Australian Farmyard and Dairy Products Exported, 1912 to 1916-17.

The quantities and values of Australian farmyard and dairy products exported from the Commonwealth during each of the last five years are shown below:—

#### QUANTITIES OF AUSTRALIAN FARMYARD AND DAIRY PRODUCTS EXPORTED FROM THE COMMONWEALTH DURING EACH OF THE YEARS 1912 to 1916-17.

Products.	1912.	1913.	1914-15.	1915-16.	1916-17.
Beeswax ... .. lbs.	9,347	10,455	2,173	3,506	7,234
Butter ... .. "	66,679,120	75,795,642	54,021,523	16,722,010	74,878,634
Cheese ... .. "	136,452	1,602,609	2,542,478	128,229	10,569,279
Egg albumen and yolk ... .. "					
Eggs ... .. doz.	6,163	4,872	12,119	3,469	8,386
Feathers, undressed ... .. "					
Honey ... .. lbs.	135,318	284,322	151,381	25,162	333,407
Lard ... .. "	2,090,477	4,279,440	1,487,536	342,569	1,681,918
Meats—					
Bacon and ham ... .. "	2,172,880	1,846,966	1,219,103	556,251	1,005,171
Frozen poultry ... .. pair	23,390	25,520	14,765	2,131	5,400
" pork ... .. lbs.	897,929	215,175	48,791	2,783	32,681
Milk, concentrated & preserved ... .. "	1,646,414	2,779,963	4,907,395	708,643	15,777,333
Pigs, living ... .. No.	609	440	168	64	19
Poultry, living ... .. "	3,849	2,480	1,154	1,939	3,105

\* Quantity not available.

#### VALUE OF AUSTRALIAN FARMYARD AND DAIRY PRODUCTS EXPORTED FROM THE COMMONWEALTH DURING THE YEARS 1912 to 1916-17.

Products.	1912.	1913.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£
Beeswax ... ..	575	657	154	234	548
Butter ... ..	3,342,320	3,564,925	2,659,030	1,022,742	5,301,273
Cheese ... ..	5,303	42,030	72,527	7,915	419,628
Egg albumen and yolk ... ..		3		4	8,327
Eggs ... ..	516	377	735	259	573
Feathers, undressed ... ..	2,926	1,576	607	45	
Honey ... ..	1,924	4,094	2,588	1,045	9,526
Lard ... ..	37,007	84,737	31,433	13,735	56,126
Meats—					
Bacon and ham ... ..	68,439	73,982	58,823	33,583	60,358
Frozen poultry ... ..	10,144	10,979	12,496	1,033	3,904
" pork ... ..	16,661	5,259	1,400	108	1,341
Milk, concentrated and preserved ... ..	34,317	72,950	122,613	24,589	531,976
Pigs, living ... ..	1,025	1,336	511	582	146
Poultry, living ... ..	1,209	1,074	591	766	3,523
Total ... ..	3,522,366	3,863,979	2,963,508	1,106,640	6,397,249

### § 8. British Imports of Dairy Products.

1. Value of Britain's Imports of Dairy Products.—From 1912 to 1914 Great Britain paid £24,000,000 annually for imported butter, the value of the imports in 1912, 1913, and 1914 being £24,354,000, £24,034,000, and £24,014,000 respectively, while for 1915 the value was £27,023,000, and for 1916 £18,964,000. For imported cheese the amounts in the years named were respectively £7,414,000, £7,035,000, £7,966,000, £11,107,000 and £12,946,000; for bacon and ham, £17,276,000, £20,497,000, £21,289,000, £30,722,000, and £41,223,000 respectively; and for pork, £1,101,000, £1,665,000, £2,663,000, £1,010,000 and £1,303,000 respectively.

2. **Butter.**—Australia in 1911 stood second, in 1912, 1913, 1914 and 1916 third, and in 1915 fourth, in regard to value of butter imported into the United Kingdom; but the import of other Australian dairy products was inconsiderable.

#### IMPORTS OF BUTTER INTO THE UNITED KINGDOM, 1916.

Country from which Imported.	Quantity.	Value.	Country from which Imported.	Quantity.	Value.
	Cwt.	£		Cwt.	£
Denmark ...	1,134,801	10,378,050	Iceland and Greenland ...	1,443	12,568
New Zealand ...	331,162	2,727,645	Sweden ...	992	7,585
Australia ...	145,065	1,239,861	British India ...	948	6,096
United States ...	131,618	1,179,670	British Possessions n.e.i. ...	4,852	47,932
France ...	130,249	974,743	Foreign Countries n.e.i. ...	5	18
Argentine Republic ...	117,597	940,409			
Canada ...	101,531	855,536			
Netherlands ...	36,202	336,478			
Russia ...	31,918	199,338			
Norway ...	7,032	58,073	Total ...	2,175,415	18,964,002

In January, 1910, the average price of Australian butter in London was 111s. After a fall in 1911, 134s. was reached in the middle of January, 1912. This high average was followed by a rapid decline. Higher prices were again in evidence as 1913 advanced, 128s. being obtained for best unsalted butter in October and November of that year; from that time till the middle of 1914 prices gradually fell to 108s., when an upward movement commenced, which continued through the latter half of 1914 and, with slight variation, throughout 1915; in December of that year 168s. was obtained for best unsalted. A slight fall in January, 1916, was followed by a gradual rise throughout the year, 210s. being obtained for best unsalted in December. Quotations for London prices are only available to end of August, 1917, on which date best Australian butter was listed at 212s. per cwt. At the commencement of March in the same year the price was 220s., this being the highest recorded price for Australian butter. Prices in London during the last nine years have been considerably higher than the average of any previous year since the Australian export trade was instituted over twenty years ago. A marked approach to Danish values has lately been made in the prices of Australian butter, Danish choice at the close of 1916 being 224s., or only three halfpence per pound over Australian.

3. **Cheese.**—The value of the British cheese imports in 1916 was £12,946,000, of which nearly seven and a-half million pounds' worth was received from Canada. Small experimental shipments from Australia were made in 1908 and following years, fair prices being realised. In 1915, the value of the imports from Australia was £91,700.

4. **Bacon and Ham.**—Of a total import of bacon and ham valued in 1916 at £41,223,000, Great Britain received imports to the value of £9,088,000 from Denmark; £23,421,000 from the United States; and £7,708,000 from Canada. The British import from Australia was small, experimental shipments only having been made during recent years.

5. **Pork.**—The total value of British imports of pork (including refrigerated, frozen and salted) was £1,303,000 in 1916. There was no import from Australia, the chief supplying countries being the United States, £1,129,000; and China, £47,000.

6. **Other Products.**—There is practically no British import from Australia of honey, beeswax, poultry, game, lard, or eggs, but frozen rabbits to the value of £1,086,000 were received from the Commonwealth in 1916.

### § 9. Graphical Representation of Dairy Production.

Two graphs shewing respectively the increase in dairy production and in the exports of butter will be found on page 322.

## SECTION X.

## FORESTS, FORESTRY, AND FORESTAL PRODUCTS.

## § 1. The Forests of Australia.

1. **Extent of Forests.**—Although no definite survey of forest lands has been made on a uniform basis for the different States of Australia, the following table gives the results of careful estimates made for each State :—

## FOREST RESERVES AND FOREST AREAS, STATE AND COMMONWEALTH, 1916.

State.	Area of Forest Reserves.		Total Forest Area.	Percentage of State Area.		Percentage of Commonwealth Area.	
	Perman-ent. (a)	Tempor-ary. (b)		Specially Reserved.	Total Forest.	Specially Reserved.	Total Forest.
	Acres.	Acres.	Acres.	%	%	%	%
New South Wales*	3,117,579		15,000,000	1.57	7.57	0.16	0.79
Victoria ...	4,128,306	125,500	11,800,000	7.56	20.98	0.22	0.62
Queensland ...	1,080,590	2,887,646	40,000,000	0.92	9.32	0.21	2.10
South Australia ...	128,294	20,235	3,800,000	0.03	1.56	0.01	0.20
Western Australia	9,908	1,611,698	20,400,000†	0.26	3.27	0.09	1.07
Tasmania ...	...	1,028,000	11,000,000	6.13	65.56	0.05	0.58
Commonwealth‡	14,137,746		102,000,000	—	—	0.74	5.36

(a) Reservations in perpetuity. (b) Reservations which may be cancelled at any time.

\* Inclusive of Federal area. † S.W. division only. ‡ Exclusive of Northern Territory.

In the case of Victoria the figures for area of permanent reserves include 3,381,905 acres reducible only by Act of Parliament, and 746,401 acres by resolution of both Houses of Parliament.

The actual area of wooded land is probably in all cases much greater than shewn above. For example, that of Western Australia is estimated at 97,900,000 acres; Queensland has probably 148,000,000 acres; and Victoria has a considerable extent of "Mallee" country not included in the above estimate. The basis of estimation for each State in any case cannot be regarded as quite identical. Considerable areas not included as forest lands possess timber of local value.

The absolute and relative forest areas of Australia and other countries, to the latest available date, are shewn in the table on the next page.

## RELATIVE AREAS OF FOREST LANDS, AUSTRALIA AND OTHER COUNTRIES.

Country.	Total Wooded Area.	Percentage of Total Area.	Country.	Total Wooded Area.	Percentage of Total Area.
	Sq. Miles.	%		Sq. Miles.	%
<b>Commonwealth</b> ...	<b>159,375</b>	<b>5.36</b>	Rumania ...	10,836	21.36
New Zealand ...	26,562	25.63	Sweden ...	90,241	52.20
United Kingdom ...	4,740	3.82	Norway ...	26,685	21.50
France ...	38,620	18.65	Russia in Europe	859,375	39.00
Algeria ...	10,249	2.98	United States ...	860,000	24.08
Germany ...	54,015	25.90	Canada ...	625,000	17.34
Switzerland ...	3,290	20.60	Cape of Good Hope	537	0.19
Italy ...	17,613	15.92	British India ...	249,867	22.85
Austria ...	37,700	31.66	Japan ...	71,890	48.33
Hungary ...	34,750	29.30			

2. **Distribution of Timber.**—The characteristics of the forest areas are given in some detail for each State in the Official Year Book No. 6, pp. 446-9. The more conspicuous timber regions of Australia as a whole are the eastern and southern portions, including Tasmania, and, again, the south-western portion northwards and eastwards from Cape Leeuwin. In regard to distribution, on the eastern side of the continent the largest timber is found on the crests and coastal slopes of the mountain ranges, but in the south-west, in addition to the vegetation between mountains and sea, a large area of forest stretches inland from the coastal ranges. The hills encircling Adelaide and Yorke and Eyre Peninsulas also bear good forest. The Kimberley district is timbered, and in the Northern Territory and round the shores of the Gulf of Carpentaria there are considerable forest areas. In the coastal regions of parts of West and North-West Australia, and along the shores of the Great Australian Bight and Encounter Bay, there is little forest. The areas in the centre of the continent are thinly timbered.

Special articles relating to Australian Eucalyptus timbers will be found in Official Year Book No. 10, pp. 85-98.

## § 2. Forestry.

1. **Objects.**—Economic forestry, aiming at the conservation of forestal wealth by safeguarding forests against inconsiderate destruction, and by the suitable re-afforestation of denuded areas, is essential to the preservation of industries dependent upon an adequate supply of timber, and to the perpetuation of a necessary form of national wealth. Though in Australia large areas of virgin forests still remain, the inroads made by timber-getters, by agriculturists, and by pastoralists—who have destroyed large areas by “ring-barking”—are considerable; and it is not unlikely that climatological changes are caused thereby. It is stated that beneficial consequences follow on the planting of trees on denuded lands, or along eroding coasts, and that a forest covering beneficially regulates the effects of rainfall.

Successful planting of exotics in various parts of the Commonwealth has demonstrated that the Australian climate is suitable for the cultivation of a large number of the most valuable and beautiful of the world's timber trees.

2. **Forestry Departments.**—Each State of the Commonwealth has organised a separate forestry department or branch of service specially charged with forestal matters. Forest improvement work is carried on, areas of young forest being cleaned up by the felling and removal of stunted, diseased and suppressed growth, the burning of debris and the making of fire breaks. Provision is made for effective patrols in forest districts to check the ravages caused by fires, often caused, it is believed, through carelessness.

3. **Sylvicultural Nurseries and Plantations.**—Recognition of the necessity for systematic sylviculture has led to the creation in most of the States of a number of

silvicultural nurseries and plantations. The locality of these establishments, together with a brief statement of the nature of their activities, is given in previous issues of the Year Book. (Reference may be made to Official Year Book No. 6, pp. 451-3.) Details regarding forest reserves, nurseries, and plantations are as follows:—

#### FOREST RESERVES AND NURSERIES, 1916.

Particulars.	New South Wales.*	Victoria.	Q'land.	South Australia.	Western Australia.	Tasmania.	Commonwealth
State Forest Reserves—							
Number (for area see page 410) ...	829	317	344	41	334	65	1,930
State Forest Nurseries—							
Number ...	4	3	3	7	1	1	19
Area ... (acres) ...	25	54	2	7	17	20	125
Plantations—							
Number ...	7	19	3	...	2	...	31
Area ...	1,072	20,740	90	...	594	...	22,496
Number of persons employed in Forestry Departments—							
Administrative ...	33	11	3	1	1	1	50
Professional ...	11	5	2	1	1	2	22
General ...	118	126	25	141	32	7	449

\* Including Federal Territory area.

4. **Revenue and Expenditure.**—The revenue and expenditure of the State Forestry Departments from 1912-13 to 1916-17 are given below:—

#### REVENUE OF STATE FORESTRY DEPARTMENTS, 1912-13 to 1916-17.

State.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£
New South Wales ...	96,145	99,333	87,386	68,107	67,273
Victoria ...	51,146	57,746	70,834	59,189	50,615
Queensland ...	63,467	62,973	75,318	70,691	60,865
South Australia ...	5,609	6,868	5,588	5,981	10,259
Western Australia ...	33,805	48,236	53,904	45,726	19,058
Tasmania ...	4,414	4,659	4,224	3,615	3,860
Commonwealth ...	254,586	279,815	297,254	253,309	211,930

#### EXPENDITURE OF STATE FORESTRY DEPARTMENTS, 1912-13 to 1916-17.

State.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£
New South Wales ...	42,154	44,828	47,207	50,531	73,762
Victoria ...	56,899	58,007	65,219	65,142	53,551
Queensland ...	5,397	7,386	7,654	7,416	9,516
South Australia ...	22,858	22,832	24,217	24,892	22,571
Western Australia ...	10,469	11,463	12,068	8,870	9,807
Tasmania ...	760	760	1,204	683	682
Commonwealth ...	138,537	145,276	157,569	157,534	169,889

5. **Instruction in Scientific Forestry.**—Several schools have been established in which, while general scientific instruction is imparted, special attention is paid to forestry. In the classes, theoretical forestry, botany, geology, physics, land surveying, etc., are taught; while in outside work trainees receive practical instruction in the preparation of seed-beds, seed-sowing, propagation, planting out, pruning, the general care and improvement of plantations and natural forests, and the employment of timber to the best advantage. The desire is to give the prospective forester a thorough training in all branches of the work. Courses of lectures are also given at various centres, and, at some of the higher technical schools, members of the forest staffs are afforded opportunities of qualifying in special subjects. Methods of training, etc., are not uniform in the various States, and one of the prime objects of the Conference of 1916 was the evolution of a system which, while aiming at uniformity, would be sufficiently elastic to provide for special needs in any State.

6. **Forest Congresses.**—Interstate Conferences on Forestry were held in 1911 and 1912, chiefly with a view of securing uniformity of management. An International Forest Congress was held at Paris in June, 1913, when Professor Percy Groom, of South Kensington Imperial College, represented the Commonwealth Government. The papers and reports dealt chiefly with the threatened shortage of timber, and the measures necessary to avert the danger. In May, 1916, an Interstate Forestry Conference was held at Adelaide.

### § 3. Commercial Uses of Principal Australian Timbers.

1. **General.**—The uses of the more important of Australian timbers are many and various, and are indicated in previous issues of this work. (See Official Year Book No. 6, pp. 454-6; and Official Year Book No. 10, Section III., § 7 and 8).

The Commonwealth Government is experimenting with Australian woods for rifle stocks, telephone switch boards, aeroplane parts, etc. Queensland maple (*Flindersia chatawaiana*) is at present largely used for rifle stocks, and supplies of coachwood are being accumulated at Lithgow for the same purpose. Money has also been made available for the seasoning and storing of Australian timber, and depôts have been established at Canberra and Newington in New South Wales, and at Maribyrnong in Victoria. Timber seasoning depôts have also been established by States Governments at the principal centres, and from these, contractors may obtain timber at scheduled rates. Other timber seasoning works have been established by private enterprise.

2. **Uniformity in Nomenclature.**—Unfortunately the vernacular names applied to the gums, ironbarks, etc., in the various States, and even in different parts of the same State, do not always refer to identical timbers. The resulting confusion has not only been productive of loss, but it has, to some extent, prejudicially affected the timber trade. This subject is referred to at some length in the special article, "Australian Eucalyptus Timbers," in Section III., § 7 and 8, in Official Year Book No. 10. At the 1916 Forestry Conference alluded to above, the matter came up for special consideration, and a resolution was passed affirming the desirability of establishing a uniform nomenclature. It was further resolved that committees should be appointed in each State to take the necessary steps to give practical effect to that resolution.

### § 4. Forestal Industries and Production.

1. **Timber.**—Estimates of the quantity and value of local timber sawn and hewn in each State are given hereunder:—

**QUANTITIES OF LOCAL TIMBER SAWN OR HEWN IN EACH STATE OF THE  
COMMONWEALTH DURING THE YEARS 1912 to 1916.**

State.	1912.	1913.	1914.	1915.	1916.
	sup. feet.	sup. feet.	sup. feet.	sup. feet.	sup. feet.
New South Wales ... ..	162,604,000	164,899,000	140,940,000	115,201,000	125,243,000
Victoria ... ..	60,000,000	81,770,000	84,374,000	62,589,000	70,039,000
Queensland ... ..	163,828,000	156,634,000	168,456,000	144,950,000	121,851,000
South Australia ... ..	1,775,080	1,899,000	2,306,000	2,026,000	2,824,000
Western Australia ... ..	217,696,000	218,908,000	327,297,000	123,494,000	100,356,000
Tasmania... ..	63,243,000	60,780,000	52,182,000	47,890,000	52,019,000
Commonwealth ... ..	669,146,000	684,890,000	675,555,000	496,150,000	472,332,000

2. **Other Forest Produce.**—(i.) *General.* No satisfactory estimates of the total value of forest production are available. Large returns are credited to firewood, but these are subject to a wide range of uncertainty.

(ii.) *Eucalyptus Oil.* A considerable quantity of eucalyptus oil is produced each year, chiefly in Victoria, the product being used as a drug and also in connection with ore flotation processes. Complete information regarding local production and consumption is not available. Oversea exports amounted in 1913 to £40,000, in 1914-15 to £21,000, in 1915-16 to £36,000, and in 1916-17 to £60,000, the bulk of the product being forwarded to the United Kingdom. Large quantities have also been exported to the United States.

(iii.) *Tan Barks.* In addition to the wattle bark, mentioned at the close of this section, a valuable tan bark is obtained from the mallet (*E. occidentalis*) of Western Australia. Its exploitation has, however, been so rapid that the available supply is now comparatively small.

## § 5. Oversea Trade.

1. **Imports.**—The quantity and value of timber imports during the four years 1913 to 1916-17 inclusive are shewn according to countries of origin in the following tables. The figures in the first table are exclusive of a few items such as veneers, etc.:—

**IMPORTS OF DRESSED TIMBER, COMMONWEALTH, 1913 to 1916-17.**

Country of Origin.	Quantity.				Value.			
	1913.	1914-15.	1915-16.	1916-17.	1913.	1914-15.	1915-16.	1916-17.
	sup. ft.	sup. ft.	sup. ft.	sup. ft.	£	£	£	£
United Kingdom ... ..	3,537	12,834	265	1,109	191	211	23	51
New Zealand ... ..	4,427	25,719	117,929	70,317	32	355	1,663	1,070
Other British Poss. ... ..	2,344	...	78,622	22,230	26	...	718	252
Germany ... ..	66,737	447,678	...	...	1,106	3,383	...	...
Norway ... ..	56,251,228	46,289,602	16,858,100	3,245,724	399,899	334,459	145,895	32,711
Sweden ... ..	23,571,012	11,699,062	7,690,606	...	137,988	95,994	66,729	...
United States ... ..	1,938,088	1,438,799	717,003	481,603	19,658	14,628	7,295	8,023
Other For. Countries ... ..	634,072	4,530	2,711	20,727	4,460	132	73	398
Total ... ..	82,471,445	59,918,224	25,465,236	3,841,710	613,360	449,162	222,396	42,505

As the table shews, the bulk of the imports of dressed timbers comes from Norway, Sweden (except in 1916-17) and the United States. Practically the whole of this timber consists of softwoods—deal and pine—used for lining, weatherboards, flooring, shelving, doors, box-making, etc.

### IMPORTS OF UNDRESSED TIMBER, INCLUDING LOGS, COMMONWEALTH, 1913 to 1916-17.

Country of Origin.	Quantity.				Value.			
	1913.	1914-15.	1915-16.	1916-17.	1913.	1914-15.	1915-16.	1916-17.
	sup. ft.	sup. ft.	sup. ft.	sup. ft.	£	£	£	£
United Kingdom	65,342	236,396	91,707	56,459	1,189	2,238	1,336	438
Canada	12,263,586	1,484,840	73,166	752,571	54,369	5,368	532	4,479
India	682,724	858,999	831,939	228,601	18,490	26,550	17,924	6,618
New Zealand	64,489,843	71,000,372	75,138,381	77,557,033	433,798	469,063	479,454	536,608
Straits Settlements	281,155	194,255	217,450	282,300	1,454	1,182	1,203	1,586
Other British Poss.	2,723	50,273	8,719	766,230	61	558	158	4,135
Japan	16,011,418	12,576,157	12,796,031	7,178,349	72,095	64,713	83,876	115,930
Java	45,890	6,239	48,599	4,683	1,312	41	1,345	136
Norway	6,204,961	2,857,057	1,557,451	69,695	42,162	22,086	12,279	570
Russia	10,516,517	3,301,910	211,931	...	66,434	20,795	1,212	...
Sweden	5,905,476	2,276,154	1,653,468	36,500	44,696	19,108	14,119	604
United States	256,331,192	171,222,415	138,033,305	109,620,926	1,418,760	943,834	792,888	680,077
Other For. Countries	317,975	265,236	951,732	51,382	2,771	3,465	6,140	955
Total	373,118,892	266,330,303	231,613,879	196,604,729	2,157,591	1,579,001	1,412,465	1,352,136

By far the larger proportion of the undressed timber imports also consists of soft-woods such as yellow pine, redwood, and oregon from the United States and Canada; kauri, rimu, and white pine from New Zealand; pine from Japan, and (prior to the war) red deals from Russia, Norway and Sweden. Amongst the hardwoods imported the principal are oak from the United States and Japan, and teak from India.

2. Exports.—The quantity and value of undressed (sawn) timber exported from 1912 to 1916-17 are given below, the countries of destination being also shewn :—

### EXPORTS OF UNDRESSED TIMBER (SAWN), COMMONWEALTH, 1912 to 1916-17.

Country to which Exported.	Quantity.*					Value.				
	1912.	1913.	1914-15.	1915-16.	1916-17.	1912.	1913.	1914-15.	1915-16.	1916-17.
	1000 sup. ft.	1000 sup. ft.	1000 sup. ft.	1000 sup. ft.	1000 sup. ft.	£	£	£	£	£
United Kingdom	11,325	20,222	20,185	5,741	1,478	79,940	140,082	143,698	45,286	10,118
Canada	456	619	67	19	260	5,693	8,028	990	321	3,796
Union of S. Africa	39,544	33,793	34,403	23,100	11,944	270,282	233,762	241,139	162,788	83,598
Ceylon	576	1,926	5,307	30	5,444	4,153	12,923	36,142	203	36,041
Egypt	...	...	7	†413	...	...	...	149	†3,638	...
Fiji	2,359	1,421	1,534	780	839	17,342	12,939	17,238	5,830	8,415
India	31,477	23,960	13,130	...	...	209,312	160,977	87,290	...	...
Mauritius	225	235	555	655	...	1,501	1,587	4,366	4,368	...
New Zealand	21,061	38,586	25,517	15,912	12,666	162,518	278,975	202,398	140,507	109,323
Ocean Island	446	347	241	197	...	3,682	3,139	1,690	1,873	...
Papua	614	598	192	205	277	6,410	6,184	2,026	2,412	5,278
Straits Settlements	18	88	12	10	2	505	478	118	100	34
Other British Poss.	15	249	504	599	510	184	2,151	4,714	4,987	6,211
Argentina Repub.	667	1,584	...	...	...	4,447	10,558	...	...	...
Belgium	2,727	2,429	...	...	...	19,193	17,146	1,378	...	...
China	1	1	2,582	...	...	2	2	17,764	...	...
Egypt	50	56	...	...	...	333	377	49	...	...
Germany	1,774	1,762	177	...	...	17,394	14,293	1,365	...	...
Japan	90	86	7	1	70	771	890	73	15	702
Kaiser Wilhelm L.	98	131	28	...	...	891	1,522	297	3	10
Marshall Islands	140	211	6	5	2	1,366	2,227	81	59	22
Netherlands	...	...	...	...	...	...	...	...	...	...
Bismarck Archip.	611	...	282	41	188	6,231	5,100	3,258	580	2,024
New Caledonia	232	201	96	33	25	2,017	2,123	800	417	300
Philippine Islands	61	63	...	...	...	414	449	...	...	...
Port'ese E. Africa	380	3,106	24	606	...	3,890	21,775	239	4,039	...
U.S. of America	942	1,295	294	469	1,433	11,182	13,379	3,891	6,826	21,354
Uruguay	1,754	668	...	...	...	11,689	...	4,518	...	...
Other For. Count.	1,692	1,836	256	124	193	16,814	13,752	2,581	1,398	2,512
Total	119,401	134,805	106,376	48,940	35,332	858,357	964,938	778,122	385,650	289,738

\* Exclusive of timber not measured in super. feet. † Previously included with foreign countries.



As the table shews, the bulk of the exports of undressed timber was consigned to South Africa, New Zealand, and the United Kingdom; and consisted of Australian hardwoods, which have earned an excellent reputation for such purposes as railway sleepers, harbour works, wood paving, etc.

The quantities of timber imported and exported during the last five years are given in the next table:—

**QUANTITIES OF TIMBER IMPORTED INTO AND EXPORTED FROM THE  
COMMONWEALTH, 1912 to 1916-17.**

Description.	1912.	1913.	1914-15.	1915-16.	1916-17.
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**IMPORTS.**

Veneers ... Sup. feet	1,815,917	1,959,436	1,438,272	430,060	499,514
Dressed ... "	76,513,670	83,849,002	62,789,849	28,653,427	8,014,939
Undressed ... "	350,052,617	349,680,896	255,897,777	223,278,433	195,830,413
Logs ... "	18,901,739	23,437,906	10,432,526	8,335,446	774,316
Palings ... No.	...	...	...	...	...
Pickets ... "	2,065,145	2,302,748	923,155	808,342	611,399
Shingles ... "	1,242,720	1,526,994	1,067,060	2,677,620	2,083,408
Staves—Dressed, etc. ... "	920	...	73,609	67,380	12,764
Undressed ... "	2,181,121	3,639,969	2,535,831	591,750	152,283
Laths for blinds ... "	*	*	*	*	*
" other ... "	29,631,746	46,337,501	18,544,270	17,629,168	11,419,145
Spokes, rims, felloes ... "	*	*	*	*	*
Doors ... "	12,172	1,410	1,611	1,925	300
Architraves, mouldings, etc. ... Lin. feet	35,106	80,398	2,313	6,202	...
Other ... "	*	*	*	*	*

**EXPORTS.**

Veneers ...	...	...	...	...	...
Dressed ... Sup. feet	975,679	716,621	742,844	498,074	322,058
Undressed ... "	119,401,434	134,805,222	106,375,692	48,939,938	35,332,403
Logs ... "	1,913,973	1,899,474	411,204	226,400	197,721
Palings ... No.	630,670	487,094	462,705	322,240	603,569
Pickets ... "	5,335	1,411	1,350	800	...
Shingles ... "	21,332	31,800	...	...	...
Staves—Dressed, etc. ... "	...	...	...	...	...
" Undressed ... "	...	...	840	...	...
Laths for blinds ... "	...	*	*	*	*
" other ... "	406,980	7,190	284,521	111,600	63,000
Spokes, rims, felloes ... "	*	*	*	*	*
Doors ... "	*	*	*	*	*
Architraves, mouldings, etc. ... Lin. feet	125,327	107,664	99,152	41,673	40,768
Other ... "	...	...	...	...	...

\* Quantity not available.

## QUANTITIES OF TIMBER IMPORTED AND EXPORTED, ETC.—Continued.

Description.	1912.	1913.	1914-15.	1915-16.	1916-17.
EXCESS OF IMPORTS OVER EXPORTS.					
Veneers ... Sup. feet	1,815,917	1,959,436	1,438,272	430,060	499,514
Dressed ... "	75,537,991	83,132,381	62,047,005	29,148,072	7,692,881
Undressed ... "	230,651,183	214,875,674	149,522,085	173,345,776	160,498,010
Logs ... "	16,987,766	21,538,432	10,021,322	8,109,046	576,595
Palings ... No.	—630,670	—487,094	—462,705	—232,240	—603,569
Pickets ... "	2,059,810	2,301,337	921,805	807,542	611,399
Shingles ... "	1,221,388	1,495,694	1,067,060	2,677,620	2,083,408
Staves—Dressed, etc. ... "	920	...	73,609	67,380	12,764
" Undressed ... "	2,181,121	3,639,969	2,534,991	591,750	152,283
Laths for blinds ... "	*	*	*	*	*
" other... ... "	29,224,766	46,330,311	18,259,749	17,517,568	11,356,145
Spokes, rims, felloes ... "	*	*	*	*	*
Doors ... "	*	*	*	*	*
Architraves, mouldings, etc. ... Lin. feet	—90,221	—27,266	—96,839	—35,471	—40,758
Other ... "	*	*	*	*	*

\* Quantity not available.

Note. — signifies excess of exports over imports.

The values of the timber imports and exports during the last quinquennium are shewn hereunder:—

## VALUE OF TIMBER IMPORTED INTO AND EXPORTED FROM THE COMMONWEALTH,

1912 to 1916-17.

Description.	1912.	1913.	1914-15.	1915-16.	1916-17.
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## IMPORTS.

	£	£	£	£	£
Veneers ...	42,379	55,374	43,625	20,610	25,670
Dressed ...	578,427	625,032	468,025	243,155	74,477
Undressed ...	2,061,666	2,036,330	1,534,188	1,383,140	1,346,497
Logs ...	99,939	121,261	44,813	29,326	5,639
Palings ...	...	...	...	...	...
Pickets ...	10,270	8,497	3,406	4,030	2,174
Shingles ...	1,892	2,208	1,654	3,487	3,132
Staves—Dressed, etc. ...	14	...	1,607	1,907	337
" Undressed ...	15,744	22,870	16,440	11,164	3,538
Laths for blinds ...	26	4	...	...	...
" other ...	26,436	40,131	24,676	14,809	9,230
Spokes, rims, felloes ...	21,616	13,993	21,228	11,239	6,001
Doors ...	3,616	445	591	910	103
Architraves, mouldings, etc. ...	145	250	31	22	...
Other ...	1,043	81	156	90	2,030
Total value	2,863,213	2,926,476	2,160,440	1,723,889	1,478,828

## VALUE OF TIMBER IMPORTED AND EXPORTED, ETC.—Continued.

Description.	1912.	1913.	1914-15.	1915-16.	1916-17.
EXPORTS.					
Veneers ... ..	£ ...	£ ...	£ ...	£ ...	£ ...
Dressed ... ..	11,542	8,160	9,327	7,190	4,804
Undressed ... ..	853,357	964,938	778,073	385,650	289,738
Logs ... ..	14,950	25,325	4,020	1,716	1,648
Palings ... ..	3,734	2,688	2,403	1,225	4,176
Pickets ... ..	66	40	20	7	...
Shingles ... ..	106	42	...	...	...
Staves—Dressed, etc. ... ..	...	...	...	...	...
Undressed ... ..	...	...	22	...	...
Laths for blinds ... ..	363	297	367	152	29
„ Other ... ..	495	11	246	245	147
Spokes, rims, felloes ... ..	12,214	8,039	6,769	6,570	4,333
Doors ... ..	1,053	960	482	554	354
Architraves, mouldings, etc. ... ..	723	541	457	152	164
Other ... ..	...	...	...	...	...
Total value ... ..	903,603	1,011,041	802,186	403,461	305,393

## EXCESS OF IMPORTS OVER EXPORTS.

Veneers ... ..	42,379	55,374	43,625	20,610	25,670
Dressed ... ..	566,885	616,872	458,698	235,965	69,673
Undressed ... ..	1,203,309	1,071,392	756,115	997,490	1,056,759
Logs ... ..	84,989	95,936	40,793	27,610	3,991
Palings ... ..	—3,734	—2,688	—2,403	—1,225	—4,176
Pickets ... ..	10,204	8,457	3,386	4,023	2,174
Shingles ... ..	1,786	2,166	1,654	3,487	3,132
Staves—Dressed, etc. ... ..	14	...	1,607	1,907	337
Undressed ... ..	15,744	22,870	16,418	11,164	3,538
Laths for blinds ... ..	—337	—293	—367	—152	—29
„ other ... ..	25,941	40,120	24,430	14,564	9,083
Spokes, rims, felloes ... ..	9,402	5,954	5,417	4,669	1,668
Doors ... ..	2,563	—515	109	356	—251
Architraves, mouldings, etc. ... ..	—578	—291	—426	—130	—164
Other ... ..	1,043	81	156	90	2,030
Total value ... ..	1,959,610	1,915,435	1,349,212	1,320,428	1,173,435

Note. — signifies excess of exports over imports.

A fair amount of sandalwood is exported each year, principally from Western Australia, and to a much smaller extent from Queensland. The largest proportion of this product is consigned to Hong Kong and China, while small quantities are taken chiefly by the Straits Settlements and India.

## EXPORTS OF SANDALWOOD, 1912 to 1916-17.

Country to which Exported.	Quantity.					Value.				
	1912.	1913.	1914-5.	1915-6.	1916-7.	1912.	1913.	1914-5.	1915-6.	1916-7.
	cwt.	cwt.	cwt.	cwt.	cwt.	£	£	£	£	£
Hong Kong ... ..	22,854	91,054	98,600	96,949	130,314	11,567	41,476	48,338	51,087	71,460
Straits Settlements ... ..	2,390	17,835	15,985	10,620	10,308	1,034	5,931	9,854	6,410	6,504
Other British Possessions...	7,863	10,760	11,333	8,576	7,100	3,455	4,560	6,426	4,602	4,429
China ... ..	36,755	13,540	50,845	18,850	9,660	16,619	5,593	27,544	9,316	5,554
Other Foreign Countries ...	233	486	386	120	120	225	387	273	76	102
Total ... ..	70,095	133,675	177,149	135,115	157,502	32,900	57,947	92,435	71,493	88,049

Tanning bark figures both as an export and import in the Commonwealth trade returns, as the following tables shew:—

## EXPORTS OF TANNING BARK, 1912 to 1916-17.

Country to which Exported.	Quantity.					Value.				
	1912.	1913.	1914-15.	1915-16.	1916-17.	1912.	1913.	1914-15.	1915-16.	1916-17.
	cwt.	cwt.	cwt.	cwt.	cwt.	£	£	£	£	£
United Kingdom ... ..	605	3,078	218	3,018	6,797	197	1,010	102	1,434	3,103
New Zealand ... ..	73,667	45,013	57,873	51,138	41,098	34,224	20,559	24,604	23,574	20,703
Other British Poss. ... ..	1,684	621	1,006	714	205	802	307	382	371	107
Belgium ... ..	40,180	36,250	7,256	...	...	15,520	14,281	2,688	...	...
France ... ..	...	...	...	...	...	...	...	...	...	...
Germany ... ..	49,849	58,011	3,256	...	...	20,630	23,653	1,109	...	...
Other For. Countries ...	2,060	1,379	8,049	39,598	11,199	755	601	3,140	16,354	5,001
Total ... ..	168,045	144,352	77,658	94,465	59,299	72,128	60,411	32,025	41,733	28,914

Prior to the war there was a fairly considerable export of tan bark to Germany and also to Belgium. The exports westward have naturally dwindled away, and at the present time New Zealand receives the largest share of the available export, while there is an increasing trade with Japan and Java. During recent years the largest proportion of the exports consisted of wattle bark from Tasmania and Victoria.

A comparison of the imports and exports of tanning bark during the last five years is given in the next table:—

## TANNING BARK IMPORTED INTO AND EXPORTED FROM THE COMMONWEALTH, 1912 to 1916-17.

Particulars.	1912.	1913.	1914-15.	1915-16.	1916-17.
QUANTITIES—	cwt.	cwt.	cwt.	cwt.	cwt.
Imports ... ..	119,253	77,689	66,136	122,188	148,206
Exports ... ..	168,045	144,352	77,658	94,468	59,299
Excess of exports over imports	48,792	66,663	11,522	-27,720	-88,907
VALUES—	£	£	£	£	£
Imports ... ..	50,920	27,987	24,924	47,698	51,461
Exports ... ..	72,128	60,411	32,025	41,733	28,914
Excess of exports over imports	21,208	32,424	7,101	-5,965	-22,547

Note.—The minus sign — denotes excess of imports.

The imports consist almost exclusively of wattle bark from the plantations in South Africa. One variety of Australian wattle was found to flourish in the sandy belts near the Coast, but it is the *Acacia decurrens*, var. *mollis*, which is chiefly relied upon for the production of wattle bark in the South African plantations. Seed has been tried from New South Wales, Tasmania, and Victoria, but it is stated that most of the seed is obtained from the best wattle bark areas in eastern Tasmania and western Victoria.

Two reasons have been given to account for the success of the industry in South Africa. (1.) It was found that the treeless, grassy highlands of Natal, were specially suitable for wattle culture, and the trees could therefore be grown in rows and economically attended to, while the necessary bark sheds and other appurtenances could be placed in the most advantageous positions. (2.) There was an abundance of cheap and efficient Hindoo labour available for employment on the plantations.

## SECTION XI.

## FISHERIES AND PISCICULTURE.

## § 1. Commercial Fisheries.

1. **Fish Stocks.**—Australasia possesses an abundant and varied fish fauna, which embraces both tropical and temperate varieties and includes destructive as well as valuable species. In rivers and lakes both indigenous and imported varieties thrive. The latter have been introduced and acclimatised for industrial and sporting purposes by Governments and angling societies. Exploitation of the fishing areas—for some classes of fish for the whole year, for others during the breeding season only, or until a certain size is attained—is, where necessary, expressly forbidden; proclaimed localities are closed against net-fishing, and a minimum size of mesh for nets is fixed. The sea-fishermen in some districts have made regulations in their own interests for the purpose of controlling the market supply, and these they rigorously observe.

2. **Economic Fisheries.**—Although Australia's food fishes are abundant, the development of the industry has been slow. It has been authoritatively stated that the marine fisheries, properly fostered, will develop into an industry of national importance. Local catches of lake and river fishes furnish, in the aggregate, a not inconsiderable amount of food supply. (See also § 5 and 6 hereinafter.)

3. **Distribution of Supplies.**—Present methods of distribution impose serious difficulties on the development of fishing generally, since there is a wide divergence between the price paid by the consumer and the return received by the producer. States and municipalities are interesting themselves in the direction of more economic distribution. Good markets are assured in the chief cities for regular deliveries of fresh fish. (See also § 5 and 6 hereinafter).

4. **Oyster Fisheries.**—Natural oyster beds, whose ample product is of excellent quality, exist on the foreshores in the shallow waters of inlets and estuaries in several parts of Australia. By husbanding the natural crop, and by judicious transplanting, the oyster output has been very materially augmented, and it is believed that there is a great future for the industry. The areas are leased by the Government to private persons, lengths of foreshore being taken up and profitably exploited. In New South Wales and Queensland particularly, the industry has developed; and small yields have been obtained in South Australia and Victoria.

5. **Pearl-shelling, Beche-de-Mer, etc.**—(i.) *General.* Pearl-shelling is carried on in the tropical districts of Queensland, the Northern Territory, and Western Australia. The pearl oyster inhabits the northern and western coastal waters from Cape York to Shark Bay, a length of shore of over 2000 miles. The shells are marketed in considerable quantities, and pearls also are obtained in Queensland and Western Australia. The fishing is generally conducted with the aid of diving apparatus, in water varying from

four to twenty fathoms in depth. In Queensland and the Northern Territory the bêche-de-mer industry is carried on, and tortoiseshell is obtained on the coasts. Experiments have been made in cultivating the pearl oyster on suitable banks. In October 1911, a pearl weighing 178 grains, and valued at £3000, was obtained at Broome. Further details regarding pearl-shelling are given in Official Year Book No. 6, p. 463. Trochus shell to the value of £12,000 and £23,000 was raised in Queensland during 1915 and 1916 respectively.

(ii.) *Royal Commission on Pearl-shelling Industry.* In accordance with the "White Australia" policy, it was originally determined that the employment of Asiatic labour in the pearl-shelling industry should be restricted, and ultimately cease, and it was proposed that after 31st December, 1913, permits to indent Asiatics for the pearling fleet should no longer be issued. In view, however, of the disorganisation of the industry occasioned by the war, the time was extended to the 30th June, 1918, after which date permits to introduce Asiatic labour were to be granted only in cases where the diver and tender of a boat were Europeans. Since the receipt of the Report of the Royal Commission, referred to hereunder, this proviso was, however, revoked. In March, 1912, a Royal Commission to inquire into the pearling industry was appointed by the Commonwealth Government, and after visits to the Queensland and Western Australian waters, various sittings, and the issue of a progress report, presented its final report in 1916. The Commissioners stated that, while it may be practicable, they did not consider it desirable or profitable to attempt by any drastic methods to transfer the industry from Asiatics to Europeans. They further stated that, while the labour now employed is almost entirely Asiatic, they did not consider that the "White Australia" policy would be weakened or imperilled by allowing the industry to continue as at present conducted.

## § 2. Fisheries Statistics.

1. *Estimates for the Commonwealth.*—The returns given below have been furnished by the State departments. Estimates and approximations, where shewn, are official. The data do not generally lend themselves to presentation on a uniform scheme, but the principal facts have as far as possible been compiled for the Commonwealth. The figures for New South Wales are exclusive of the State Trawling operations.

### GENERAL FISHERIES (EXCLUDING EDIBLE OYSTERS, PEARLSHELL, AND BÊCHE-DE-MER), COMMONWEALTH, 1916.

State.	No. of Boats Engaged.	Value of Boats and Equip- ment.	No. of Men Em- ployed.	Total Take of		Value of Take.	
				Fish.	Lobsters.	Fish.	Lobsters.
	No.	£	No.	cwt.	doz.	£	£
New South Wales ...	1,007	57,943	3,006	169,321	†10,561	231,881	†7,921
Victoria ...	685	59,865	883	88,397	15,071	108,654	8,427
Queensland...	613	30,435	1,138	54,200	...	69,508	...
South Australia ..	850	32,000	1,203	131,000	cwt 11,000	235,500	14,000
Western Australia ...	243	20,937	487	24,746	7,057	45,000	3,234
Tasmania ...	170	20,400	310	*	*	46,500	*
Northern Territory†...	13	350	75	1,910	...	5,492	...
Commonwealth ...	3,581	221,930	7,102	\$469,574	*	742,535	\$33,582

\* Not available.    † Also 1,138 baskets crabs, value £854.    ‡ For year 1915.  
§ Exclusive of Tasmania.

The available returns from the Commonwealth oyster fisheries appear in the next table. Edible oysters are not found in Western Australia. There is no information available in regard to the small consumption of local oysters in Tasmania.

## EDIBLE OYSTER FISHERIES, COMMONWEALTH, 1916.

State.	Number of Boats Engaged.	Value of Boats and Equip-ment.	Number of Men Em-ployed.	Number of Leases.	Oysters Taken.	
					Quantity.	Value.
	No.	£	No.	No.	cwt.	£
New South Wales ...	401	13,937	399	2,979	40,681	58,418
Victoria ...	50	2,500	70	1	12,685	4,550
Queensland ...	94	9,943	146	654	31,874	31,421
South Australia ...	2	500	3	...	500	500
Western Australia ...	...	...	...	...	...	...
Tasmania ...	...	...	...	...	...	...
Northern Territory ...	...	...	...	...	...	...
Commonwealth ...	547	26,880	618	3,634	85,740	94,884

The pearling industry is carried on in the tropical waters of Queensland, Western Australia, and the Northern Territory. During the last few years the return from the pearling industry has been adversely affected by labour conditions, coupled with the restriction in the market consequent on the war. Some of the pearling fleets have transferred their operations to Dutch waters. Bêche-de-mer is obtained in Queensland and the Northern Territory, the product being exported to China.

## PEARL, PEARLSHELL, AND BÊCHE-DE-MER FISHERIES, COMMONWEALTH, 1916.

State.	Number of Boats Engaged.	Value of Boats and Equip-ment.	Number of Men Em-ployed.	Quantity of Pearls- hell obtained.	Value of Pearls- hell obtained.	Value of Pearls ob- tained.	Value of Bêche-de- mer obtained.	Value of Tor- toiseshell ob- tained.
	No.	£	No.	Tons.	£	£	£	£
New South Wales ...	...	...	...	...	...	...	...	...
Victoria ...	...	...	...	...	...	...	...	...
Queensland ...	124	40,706	1,053	6½	125	†	30,062	212
South Australia ...	...	...	...	...	...	...	...	...
West Australia ...	280	119,367	2,133	1,490	222,995	27,190*	...	...
Tasmania ...	...	...	...	...	...	...	...	...
N. Territory† ...	25	6,250	150	42	6,135	...	160	50
Commonwealth	429	166,323	3,336	1,538½	229,255	†	30,222	262

\* Exclusive of pearls obtained by Japanese divers, of which no record is obtained.

† For year 1915. ‡ Not available.

Information in regard to the value of pearls obtained was furnished by Western Australia only, the figures for 1916 being £27,190, as compared with £14,894 in the preceding year and £90,000 in 1914. Pearls obtained in Queensland waters were valued at £6,120 in 1914. For obvious reasons the returns can be regarded as rough approximations only. The next table gives the revenue from fisheries in each State.



## PUBLIC REVENUE FROM FISHERIES, COMMONWEALTH, 1916.

State.	Licenses.	Leases.	Fines and Forfeitures.	Other Sources.	Total.
	£	£	£	£	£
New South Wales ...	1,370	8,432	241	154	10,197
Victoria ...	320	1	450	27	798
Queensland...	2,293	3,716	68	...	6,077
South Australia	425	...	...	...	425
Western Australia ...	3,581	1,916	...	44	5,541
Tasmania* ...	630	...	5	30	665
Northern Territory ...	54	...	...	...	54
Commonwealth ...	8,673	14,065	764	255	23,757

\* Returns incomplete; refer mainly to Fisheries Board of Hobart.

A summary of the main items of information available in regard to General and Oyster Fisheries in the Commonwealth is given hereunder for the five years 1912-16 :—

## GENERAL AND OYSTER FISHERIES, COMMONWEALTH, 1912 to 1916.

Particulars.	1912.	1913.	1914.	1915.	1916.
<b>General Fisheries—</b>					
No. of boats engaged ...	2,898	3,114	3,321	3,374	3,581
„ men employed ...	6,114	6,428	7,363	7,355	7,102
<b>Fish obtained—</b>					
Quantity ... cwt.	391,168†	388,371†	563,543	466,040†	469,574†
Value... .. £	497,345	489,236	519,723	709,176	742,535
Lobsters obtained—Value, £	27,840	30,879	33,111	30,722	33,582†
<b>*Edible Oyster Fisheries—</b>					
No. of boats engaged ...	485	428	398	503	547
„ men employed ...	518	487	453	618	618
<b>Oysters obtained—</b>					
Quantity ... cwt.	58,113	68,054	60,199	71,122	85,740
Value ... .. £	79,933	74,204	62,153	76,160	94,884
<b>Public Revenue from Fisheries</b>					
Licenses ... .. £	5,576	7,379	9,664	7,717	8,673
Leases ... .. £	11,668	11,081	12,823	13,004	14,065
Fines and forfeitures	495	480	427	713	764
Other sources ... .. £	625	442	662	218	255
<b>Total revenue</b> ... .. £	18,364	19,382	23,576	21,652	23,757

\* There are practically no oyster fisheries in Victoria, Western Australia, and Tasmania.

† Exclusive of Tasmania.

The following table gives in summarised form for the years 1912-16 the details available in regard to pearling and bêche-de-mer fishery for the States where these industries are carried on, i.e., Queensland, Western Australia, and the Northern Territory. The low production in 1915 was, of course, due to the loss of market occasioned by the war. For obvious reasons, figures regarding value of pearls obtained can be taken as rough approximations only.

**PEARL, PEARLSHELL, AND BÊCHE-DE-MER FISHERIES, COMMONWEALTH,  
1912 to 1916.**

Particulars.	1912.	1913.	1914.	1915.	1916.
No. of boats engaged ...	607	598	581	346	429
No. of men employed ...	4,291	4,277	4,137	2,561	3,336
Pearlshell obtained—					
Quantity ... tons	2,103	2,014	1,823	1,180	1,538½
Value ... £	530,298	346,437	297,776	143,407	229,255
Pearls obtained *—					
Value ... £	106,375†	97,730†	97,535†	14,894†	27,190†
Bêche-de-mer obtained—					
Quantity ... tons	450	625	531	770	513
Value ... £	25,142	30,943	27,847	40,078	30,222
Tortoiseshell obtained—					
Quantity ... lbs.	1,302	1,382	870	327	982
Value ... £	785	850	625	155	262

\* As returned.

† Incomplete; and exclusive of pearls obtained by Japanese divers.

In addition to the production mentioned above, Queensland during 1916 raised 951 tons of trochus shell, valued at £22,941. The shell is used principally in the manufacture of "pearl" buttons.

### § 3. Oversea Trade in Fish.

That the development of the fishing industry in Australia leaves much to be desired is evident from the fact that the import of preserved fish into the Commonwealth is very large. The figures for the imports for the last five years were as follows:—

#### IMPORTS OF FISH, COMMONWEALTH, 1912 to 1916-17.

Classification.	1912.	1913.	1914-15.	1915-16.	1916-17.
Fresh (oysters) ...	cwt. 8,765 £ 5,279	8,912 5,281	6,353 4,187	4,736 3,040	3,059 2,157
Fresh, or preserved by cold process... ..	cwt. 25,673 £ 56,396	34,172 78,510	27,015 65,741	25,771 68,676	18,363 48,191
Potted ... ..	cwt. * £ 35,506	* 37,644	* 38,552	* 54,414	* 44,268
Preserved in tins ...	cwt. 194,092 £ 606,969	171,733 525,996	194,005 660,693	213,347 755,286	174,145 715,741
Smoked, dried and n.e.i.	cwt. 26,472 £ 76,327	24,629 70,605	15,477 37,141	10,403 32,868	10,015 37,239
Total ...	{ cwt.† 255,002 £ 780,477	239,446 718,036	242,850 806,314	254,257 914,284	205,582 847,596

\* Not available. † Exclusive of potted fish.

Tinned fish constitutes by far the largest proportion of the imports, the bulk of it consisting of salmon from the United States, Canada, Norway, and Alaska. The potted fish comes chiefly from the United Kingdom. New Zealand supplies the largest proportion of the fresh fish, the bulk of the remainder coming from the United Kingdom. The small import of oysters consists entirely of New Zealand produce.

The exports of local fish produce for the five years 1912 to 1916-17 is given hereunder :—

**EXPORTS OF FISH (AUSTRALIAN PRODUCE), 1912 to 1916-17.**  
**COMMONWEALTH.**

Classification.		1912.	1913.	1914-15.	1915-16.	1916-17.
Fish, fresh, smoked, or preserved by cold process	{ cwt.	137	114	1,919	918	764
	{ £	436	367	9,532	2,806	3,089
Preserved in tins, dried, salted, etc.	{ cwt.	38,268	11,334	10,655	11,044	12,222
	{ £	35,827	40,573	29,337	40,441	39,839
Total	{ cwt.	38,405	11,448	12,574	11,962	12,986
	{ £	36,263	40,940	38,869	43,247	42,928

The quantity of fresh fish exported from the Commonwealth is trifling, and the amount of £3089 shewn in the table above consists chiefly of cured bêche-de-mer exported to Hong Kong from Queensland and the Northern Territory. The bulk of the amount of £39,839 consists of an export of salt fish also to Hong Kong from Queensland.

The exports of pearlshell and tortoiseshell are given hereunder for the five years 1912 to 1916-17 :—

**EXPORTS OF PEARLSHELL AND TORTOISESHELL, 1912 to 1916-17.**  
**COMMONWEALTH.**

Article.		1912.	1913.	1914-15.	1915-16.	1916-17.
Pearlshell	{ cwt.	64,976	41,813	26,276	50,124	69,515
	{ £	524,281	383,193	179,430	194,052	363,669
Tortoiseshell	{ lbs.	5,170	3,244	1,244	570	1,283
	{ £	3,454	2,081	822	333	802

Nearly 70 per cent. of the pearlshell exported during 1916-17 was consigned to the United States, which took nearly £246,000 worth of the total export. The next largest share went to the United Kingdom, which took £63,000 worth, while shell to the value of £46,000 was exported to Japan.

## § 4. Development of the Fishing Industry.

1. **Transport and Marketing.**—Up to the present the question of adequate transport and marketing of the proved supplies of fish has not been satisfactorily dealt with in all the States. In New South Wales, as shewn in § 6 hereinafter, the matter of exploiting and marketing trawlable fish has been undertaken by the State Government, which has also taken steps to improve the conditions under which the ordinary coastal fishing is carried on.

2. **Experiment and Culture.**—In many respects the fishing industry is capable of modification and development. Although some valuable work has been done by the State Governments in the way of experiment and culture, a uniform policy of development for Australia is desirable, and recommendations have been made that the Fisheries Departments of the various States should co-operate with the Federal Government with a view to increasing the productiveness of the Commonwealth waters; and that uniform fisheries laws should be adopted by adjacent States.

All live fish imported into Australia are examined on shipboard in order to prevent the importation of undesirable fish.

With the object of ascertaining something of the movements of oceanic fishes, as well as of those estuarine fishes which make periodical oceanic migrations, reports are furnished regarding the various kinds of fishes, etc., and their movements along the coast.

Fuller details regarding the activities of the States in fish-culture are given in Official Year Book No. 6, pp. 471-2.

By arrangement with the Commonwealth Fisheries Department, members of the staff of the Australian Museum, Sydney, accompanied the F.I.S. "*Endeavour*" on various cruises. Specimens were collected, mounted for scientific purposes, and distributed to other Australian Museums, a considerable number being put aside for the Commonwealth Fishery Museum.

**3. Consumption of Fish.**—Despite the circumstance that numerous varieties of valuable food fishes abound in the coastal waters of Australia, while the freshwater rivers and lakes yield abundant supplies of natural and acclimatised species, the fishing industry has not developed to the extent that might reasonably be expected. It has been said that the Australians are not an "ichthyophagous race," but the comparatively heavy import of dried and preserved fish would appear to disprove this statement. The natural explanation seems to be that the industry is ill-managed, the price to the consumer is high, while the fisherman's gain is uncertain—and the system of distribution lacks method. Considerable improvement has, however, been effected in recent years, particularly in New South Wales (vide § 6 herein).

## § 5. The Commonwealth Department of Fisheries.

**1. The Federal Council of Australasia.**—The Federal Council had power to legislate with regard to fisheries in Australasian waters beyond territorial limits. In its second session (opened 16th January, 1888) an Act was passed to regulate pearlshell and bêche-de-mer fisheries in Australasian waters adjacent to Queensland; and in the third session, opened shortly afterwards, the Act was made applicable to Western Australia. Upon the passing of the Commonwealth Constitution Act of 1900, however, the Federal Council ceased to exist.

**2. Commonwealth Investigations.**—In 1907 the Commonwealth Government decided to demonstrate what might be attained commercially by the application of modern methods. A Federal Investigation Ship, the "*Endeavour*," was constructed specially for the work, and a Director of Fisheries was appointed. Experimental cruises were immediately undertaken. These shewed that the Commonwealth possesses an asset of considerable value in her sea fisheries. The scope and results of the inquiries are set out in the reports issued by the late Director.

**3. Scope of the Inquiry.**—The immediate scope laid down for the investigation was, shortly, as follows:—

- (i.) By various means of capture to ascertain what marketable food-fishes may be found in ocean waters adjacent to Australia.
- (ii.) In what quantity they may be taken.
- (iii.) To what extent they migrate, and whither.
- (iv.) How they may be conveniently and economically captured.
- (v.) By systematic survey to find out and chart suitable fishing grounds.

In addition to the work which was thus carried on in the various recognised methods of capture (including long-line and drift-net fishing, etc.), hydrographic survey work, etc., was carried out for the purpose of ascertaining the nature of the sea bottom, depth of water, currents, and sea temperature.

4. **The F.I.S. "Endeavour."**—The construction of the investigation vessel was undertaken in the Commonwealth, and was upon the lines shewn by the most recent European experience to be of greatest advantage, with necessary modifications to suit the Australian climate. A description of the vessel, which was the first Commonwealth-owned sea-going ship, is given in Official Year Book No. 6, p. 473. Up to the end of 1913, 85 cruises had been made in eastern and southern waters. In 1914, 13 more cruises were successfully undertaken; but the vessel with all on board, including the Director, was lost on her 99th cruise, which was commenced on 20th November, 1914.

5. **Trawling Grounds Discovered by the "Endeavour."**—According to information supplied by the Commonwealth Department of Trade and Customs, it would appear from the experiments carried out by the "Endeavour" on the shelf of the east coast of Australia, that the best trawling grounds extend from near Port Stephens, in New South Wales, past Sydney to Gabo Island, continuing across the eastern slope of Bass Strait past Flinders Island to Tasmania. These trawling grounds cover an area of approximately 6000 square miles, and are within easy access to two markets—Sydney and Melbourne. Extensive operations have been carried out on these grounds, and fish in payable quantities have been obtained.

A very rich trawling ground has also been located in the centre of the Great Australian Bight, estimated to cover an area of about 4000 square miles. The depth varies from 80 to 300 fathoms, but the greater portion of the trawlable area is situated between 100 and 200 fathoms. Excellent results were obtained by the "Endeavour" in this locality, fine rock ling and flathead being among the many choice varieties caught. This ground is situated about half-way between Adelaide and Albany, and about two days' steaming from either place.

In both of the trawling areas referred to above, considerable quantities of prime edible fish have been caught by the "Endeavour," thus demonstrating the potential value of Australia's deep-sea fisheries.

6. **The Continental Shelf.**—In addition to the primary duty of locating payable trawling grounds, extensive hydrographic surveys were carried out by the "Endeavour" along the coast from the north of Queensland to the west coast of Western Australia. Soundings, samples of the sea bottom, sea temperatures, etc., were taken, principally within the hundred-fathom line, in order to determine the suitability or otherwise of the localities for trawling. These observations were, in most instances, taken prior to the casting of the trawl net, which was the principal means of capture used by the "Endeavour" for ascertaining the richness of areas so far as the abundance of fish food was concerned. Most of the soundings have been charted and are available for public information.

The late Mr. H. C. Dannevig, formerly Director of Fisheries for the Commonwealth, in his "Report on the Continental Shelf on the East Coast of Australia" (Fisheries—Volume III., Part 6), explained how systematic surveys were carried out by him on the "Endeavour," and information obtained as to the nature of the continental shelf which surrounds the Australian continent.

The shelf consists of a narrow submerged ledge, varying in width from 10 miles to more than 100 miles, covered by a depth of less than 100 fathoms. From the outer edge of this ledge or shelf the bottom slopes away more or less abruptly towards the great ocean depths. It is within the area of the shelf that trawling grounds may be looked for.

On the east coast of Australia, the typical shelf commences at Sandy Cape in Queensland, and continues southwards. For about 360 miles, or south of Smoky Cape in latitude 31° S., the shelf presents peculiarities which gradually disappear further south. One of these peculiarities is that the shallow portion of the shelf continues seawards for a considerable distance, so that, for instance, at Double Island, the depth is only 50 fathoms. At this depth the shelf may here be said to terminate, as, at depths

from 60 to 100 fathoms, apart from being narrow and rocky, the sea floor is frequently so steep as to form part of the general slope downwards to abysmal depths. Another peculiarity is that northwards from Cape Moreton the shallow portion of the ledge is mainly covered with coral sand, which southwards gives way to a somewhat yellow sand, occasionally interspersed, in localities where the currents are strong, with gravelly beds.

Southwards from Smoky Cape the relative proportion between the inner and outer areas becomes reversed. At the Cape itself the shelf is narrow and divides into two equal belts; the shallow area of less than 50 fathoms, and a deeper stratum with an average depth of 70 fathoms. From here southwards the outer stratum becomes gradually wider at the expense of the inshore or secondary ledge, a maximum width of which is found in the Newcastle Bight, where the inshore ledge is seven to eight miles wide, while the outer ledge extends for another twenty-one miles before breaking off into the deep. Simultaneously with the appearance of the outside ledge at Smoky Cape the depth of the "break off" increases quickly to about 100 fathoms, and remains so for the remainder of the coast south to Gabo Island.

Southwards from Gabo Island the shelf widens out considerably, and consists entirely of the outward or deeper stratum, which, between 50 and 300 fathoms, is many miles wide. The edge gradually bends westward parallel with the coast until opposite the mouth of the Snowy River, where at a distance of about thirty miles from land it turns abruptly to the south. On approaching the bend, the shallow area (of less than 50 fathoms) has gradually extended at the expense of the outer ledge, and while the former continues westward through Bass Strait and connects Victoria and Tasmania, the latter extends as a relatively narrow belt along the eastern slope past Flinders Island and along the east coast of Tasmania.

The hundred-fathom line from the south of Tasmania to the western end of the Great Australian Bight was also surveyed by the "Endeavour." On that portion of the coast it was found that the continental shelf was considerably wider than on the east coast, and the slope of the shelf more gradual.

**7. Publications of the Commonwealth Fisheries Department.**—New and rare species of fish and marine forms secured by the "Endeavour" have been preserved, examined and described by various scientists, recognised as authorities on the subject of marine life. The following monographs have been published by the Department of Trade and Customs, the names of the authors being appended:—

SUBJECT.	AUTHOR.
<i>Mollusca</i> (2 parts) ... ..	Charles Hedley, F.L.S. (Assistant Curator and Conchologist, Australian Museum, Sydney).
<i>Fishes</i> (4 parts) ... ..	Allan R. McCulloch (Zoologist, Australian Museum).
<i>Sponges</i> ... ..	E. F. Hallmann, B.Sc. (Australian Museum).
<i>Assymetron</i> ... ..	Miss Janet W. Raff, B.Sc. (Melbourne University).
<i>Globigerina Ooze</i> ... ..	F. Chapman, B.A., A.L.S. (Palæontologist, National Museum, Melbourne).
<i>Hydroida</i> (3 parts) ... ..	W. M. Balé, F.R.M.S.
<i>Foraminifera and Ostræoda</i> ... ..	F. Chapman, B.A., A.L.S.
<i>Algæ</i> ... ..	A. H. Lucas, M.A. (Sydney Grammar School).
<i>Polychæta</i> ... ..	William Benham, M.A., D.Sc., F.R.S. (Professor of Biology at the University of Otago, N.Z.)
<i>Gephyrean Priapulæ</i> ... ..	Do. do. do.
<i>Sea Lilies, Star Fishes, Brittle Stars and Sea Urchins</i> ... ..	Hubert Lyman Clark (Curator of Echinoderms, Museum of Comparative Zoology, Cambridge, Mass., U.S.A.).
<i>Cephalopoda</i> ... ..	S. Stillman Berry.

The following papers were, in addition, prepared by the Director of Fisheries, the late H. C. Dannevig:—

First and Second Preliminary Reports on the Fishing Experiments carried out by the F.I.S. "Endeavour."

Notes on Australia's Fisheries, with a summary of the results obtained by the F.I.S. "Endeavour."

Paper on the Continental Shelf of the East Coast of Australia.

Paper on the Physiography of Bass Strait.

## § 6. The State Trawling Industry—New South Wales.

As far back as the year 1898, the New South Wales Government equipped a small vessel called "Thetis" for the purpose of investigating the potentialities of the State coastal waters in regard to the supply of edible fish. The knowledge gained from the cruises of this vessel was, of course, considerably augmented by that obtained since 1907 by the more modern methods adopted by the Commonwealth vessel "Endeavour." In view of the favourable outlook, the State Government determined to exploit the fishing industry. The necessary vessels and equipment were ordered, and by the middle of the year 1915, three steam trawlers built of steel and equipped in accordance with the most up-to-date methods had commenced operations in the coastal waters. Other vessels have also been built for trawling and surface fishing. It was not long before these vessels had proved the existence of highly valuable trawling grounds within a day's steam of Sydney Heads, and what is believed to be one of the most prolific areas in the world has been located within three hours steam of the home wharf. The ample product has been landed and sold to the public at extremely low rates in the State retail depôts as well as at occasional sales in markets and in country districts.

There are seven State retail fish depôts, six in the metropolitan district, and one at Newcastle.

Moreover, in connection with the undertaking, arrangements have been made for the collection and distribution of fish taken by coastal and estuarine fishermen. With this end in view, large refrigerating stations have been built at Newcastle, Clarence River and Port Stephens. The scheme has proved a great boon to fishermen by obviating the losses caused by the uncertain supply of ice and the absence of facilities for marketing.

There is a strong feeling that it is desirable for either the Government or the City Council to take over the entire control of the fishing industry.

## § 7. Fish Preserving.

Bounties have been provided by the Federal Government for fish preserving, the rate payable being  $\frac{1}{2}$ d. per lb. The amounts paid were £27 in 1907-8; £1727 in 1908-9; £311 in 1909-10; £115 in 1910-11; £168 in 1911-12; £103 in 1912-13; £80 in 1913-14; £156 in 1914-15; £106 in 1915-16, and £177 in 1916-17. It is hoped that the bounties, together with the increased yield that may be expected to result from the fisheries investigations now being conducted, will lead to a considerable output and consumption of locally-preserved fish. Up to the present but little development has taken place, the establishments which claimed bounty for fish preserving numbering only five in 1916-17, as compared with two in the preceding year, and five in 1914-15.

## SECTION XII.

## MINES AND MINING.

## § 1. The Mineral Wealth of Australia.

1. **Place of Mining in Australian Development.**—The value of production from the mineral industry is now considerably less than that returned by the agricultural or the pastoral industry, nevertheless it was the discovery of gold in payable quantities that first attracted population to Australia, and thus laid the foundation of its nationhood. Prior to 1851, the year when Hargraves' memorable discovery was made, coal and copper had both been mined to some extent, and the existence of deposits of other minerals, including gold, had been proved. But it was the news of the sensational finds of the precious metal in 1851 and the year immediately following that brought about a constant stream of immigration, and caused an increase in population from 221,000 at the end of 1841 to upwards of 1,168,000 at the end of 1861.

2. **Extent of Mineral Wealth.**—The large production of gold, silver, copper, and tin, the extent of the coal deposits, the presence of large quantities of iron ore, and the great variety of minerals found in appreciable quantities, suggest that the future history of mining will, in all probability, be even more remarkable than that of the past. For the extent of the total mineral wealth of Australia cannot yet be regarded as well ascertained, since the mineral exploration of the country is, after all, still in its infancy. The presence of considerable deposits of valuable minerals has long been known. Thus, coal was discovered in 1797, and a shipload was exported to Bengal in 1799; silver was discovered by Count Strzelecki as early as 1839, and was worked as early as 1864; copper mining dates back to 1844; lead to about 1848; iron to about 1850; while the discovery of gold in payable quantities dates back to 1851. Cobalt, nickel, manganese, chromium, tungsten, molybdenum, mercury, antimony, bismuth, zinc, radio-active ores, etc., have all been found, some in fairly large quantities.

Among the more valuable non-metalliferous substances may be mentioned coke, kerosene shale, graphite, alunite, asbestos, diatomaceous earth, clays, ochres, etc.; in building stones, sandstones, syenites, granites, basalts, augite-andesite, porphyries, serpentines, slates, limestones, and marbles; in precious stones, diamonds, emeralds, rubies, sapphires, amethysts, precious opal, turquoise, topazes, garnets, chrysolites, cairngorm, agates, etc. In general it may be said that the variety of Australian mineral wealth is very great.

3. **Value of Production during 1916.**—The continuance of the war in 1916 naturally had a very serious effect on the mineral industry in Australia, although this was to some extent compensated for by the high prices ruling for industrial metals, particularly copper. In New South Wales, the returns for 1916 shewed an advance of over £900,000 on those for the previous year, due principally to the increased return from silver, lead and copper. In Victoria, owing to the decline in the gold yield, the returns for 1916 shewed a decrease in production of about £333,000. The Queensland production shewed an advance of £699,000, due chiefly to increased yield from copper. South Australia shewed an increase of about £212,000, contributed to most largely by copper and gold. For Western Australia the falling-off in 1916 amounted to about £585,000, and was due entirely to the reduced gold yield. The Tasmanian production shewed an increase in 1916 of about £295,000 over the return for the previous year, the improvement being due to the heavier yield from blister copper.



The comparative value of the production of minerals raised in each State during 1916 is given in the following table:—

## COMMONWEALTH MINERAL PRODUCTION IN 1916.

Minerals.	N.S.W.	Victoria.	Q'land.	S.A.	W.A.	Tas.	N.T.*	C'wealth.
	£	£	£	£	£	£	£	£
Alunite ...	1,980	...	...	670	...	...	...	2,650.
Antimony ...	13,334	77,275	3,965	...	580	...	...	95,154
Bismuth ...	5,473	...	20,599	...	133	1,059	...	27,264.
Coal ...	3,336,419	216,875	389,348	...	147,823	27,736	...	4,118,201
Coke ...	37,571	...	...	...	...	...	...	387,571
Copper ...	586,127	...	2,265,422	822,527	64,833	886,454	5,517	4,630,880.
Diamonds ...	1,375	...	...	...	...	...	...	1,375.
Gems (unspecified)...	...	...	14,733	...	...	...	...	14,733
Gold ...	459,370	1,090,194	913,951	33,000	4,508,532	67,072	2,554	7,074,673.
Gypsum ...	...	1,853	...	17,825	...	...	...	19,678
Iron ...	197,085	...	...	...	...	...	...	197,085
Iron oxide ...	2,695	...	...	200,107	...	...	...	202,802.
Ironstone flux ...	1,083	...	37,781	275	...	...	...	39,139
Kaolin ...	758	1,200	...	2,616	...	...	...	4,574
Lead (pig, etc.) ...	799,632	...	19,193	...	74,930	...	275	894,030.
Limestone flux ...	20,700	1,689	45,473	23,325	...	...	...	91,687
Manganese ...	1,443	300	2,793	2,700	...	...	...	7,236
Molybdenite ...	22,066	...	34,369	...	...	...	45	56,480.
Opal ...	21,273	...	500	750	...	...	...	22,523.
Platinum ...	687	...	...	...	...	...	...	687
Salt ...	...	†	...	83,000	...	...	...	83,000.
Scheelite ...	13,719	...	...	...	438	...	...	14,157
Shale ...	17,772	...	...	...	...	1,286	...	19,058
Silver ...	349,367	1,239	31,395	514	22,258	...	...	404,773.
Silver-lead ore, concentrates etc. }	2,935,624	...	...	4,659	12,033	153,796	...	3,106,112.
Tin ...	306,497	12,955	181,401	...	49,101	350,852	27,120	927,926.
Wolfram ...	31,163	100	57,812	28	128	16,910	20,269	126,411
Zinc, Spelter and Concentrates ...	961,849	...	...	...	630	...	...	962,479.
Unenumerated ...	38,122	90	1,771	20,404	11,998	15,885	...	88,270
Total ...	10,513,184	1,403,770	4,021,007	1,212,400	4,893,417	1,521,050	55,780	23,620,608.

\* Year ended 30th June, 1917.

† Not available for publication.

It may be pointed out in connection with the figures given in the above table that the totals are exclusive of returns relating to certain commodities, such as stone for building and industrial uses, sand, gravel, brick clays, lime, cement, and slates, which might rightly be included under the generic term "mineral." Valuations of the production of some of these may be obtained from the reports of the various Mines Departments, but in regard to others it is impossible to obtain adequate information. In some instances, moreover, the published information is of little value. Thus, the New South Wales Mines' Report supplies the value of exports only in connection with building stone, and it is obvious that such figures are of little value as regards production, while the Victorian figures are incomplete. It has therefore been considered advisable to discard both totals. By restricting the comparison to items in connection with which properly comparable information can be obtained for each State, it is believed that a satisfactory estimate of the progress of the mineral industry can be more readily obtained. The items excluded from the total for New South Wales in 1916 consist of—lime, £38,958; marble, £1625; Portland cement, £420,928; building stone, £65; slates, £861; and grindstones, £121. The South Australian figures are exclusive of flint pebbles, £474. For South Australia the principal items in the unenumerated class are phosphate-rock, £5839; fireclay, £1204; while the sulphur contents of the copper ores are valued at £10,378. Iron pyrites accounted for £13,597 in the total of the unenumerated class in Tasmania.

4. Total Production to end of 1916.—In the next table will be found the estimated value of the total mineral production in each State up to the end of 1916. The figures given in this table are also exclusive of the same items referred to in connection with the preceding table. Thus the total for New South Wales falls short by £4,008,000 of that published by the State Department of Mines, the principal items excluded being cement, £3,496,000; lime, £448,000; and building stone, £26,000.

## COMMONWEALTH MINERAL PRODUCTION TO END OF 1916.

Minerals.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	North'n Territory.	C'wealth:
	£	£	£	£	£	£	£	£
Gold ...	61,649,740	297,794,151	79,390,926	1,007,888	129,766,685	7,806,489	2,147,803	579,553,682
Silver and lead ...	75,412,860	226,038	2,503,615	342,199	1,036,558	6,920,455	78,940	86,520,665
Copper ...	13,478,070	218,500	17,421,440	30,036,799	1,449,041	12,724,674	350,975	75,679,589
Tin ...	10,589,308	816,996	8,395,443	...	1,261,569	13,407,043	409,989	35,480,347
Coal ...	83,356,373	3,518,647	6,985,984	...	1,657,415	684,337	...	96,213,256
Other ...	24,659,026	617,532	2,751,594	2,450,007	108,396	296,144	77,149	30,589,848
Total ...	269,145,877	303,191,954	118,079,002	33,836,893	135,279,663	41,839,142	3,064,856	904,437,387

The "other" minerals in New South Wales include antimony, £331,948; bismuth, £143,030; chrome, £102,617; coke, £3,261,537; diamonds, £129,071; iron, £3,018,380; opal, £1,413,910; oil shale, £2,388,205; wolfram, £196,186; and zinc, £12,182,029. In the Victorian returns antimony ore was responsible for £428,258. Included in "other" in the Queensland production were opal, £178,195; gems, other, £300,627; bismuth and wolfram, £1,049,050; antimony ore, £58,343; manganese, £68,512; limestone flux, £432,006; and ironstone flux, £345,014. The chief item in South Australian "other" minerals was salt, £1,075,888, but large values must also be apportioned to limestone flux, the yield from the latter amounting to over £523,000 in the last 10 years. Considerable values from gypsum and rock phosphates are also included. In the Tasmanian returns limestone flux was responsible for nearly £100,000, and iron ore for about £26,000, while the figures for recent years include values for iron pyrites. In the Northern Territory returns wolfram constitutes the chief item in "other" minerals.

It will be convenient in the succeeding pages to deal first with gold and the various metals, then with non-metallic minerals and precious stones, and finally to furnish some account of the extent of employment in mining generally.

## (A) METALS.

## § 2. Gold.

1. *Discovery of Gold in Various States.*—The discovery of gold in payable quantities was an epoch-making event in Australian history, for, as one writer aptly phrases it, this event "precipitated Australia into nationhood." A more or less detailed account of the finding of gold in the various States appears under this section in Official Year Books Nos. 1 to 4, but considerations of space preclude its repetition in the present issue.

2. *Production of Gold at Various Periods.*—In the following table will be found the value of the gold raised each year in the several States and in the Commonwealth from the dates when payable discoveries were first reported. Owing to defective information in the earlier years the figures fall considerably short of the actual totals, for during the first stages of mining development, large quantities of gold were taken out of Australia by successful diggers, who preferred to keep the amount of their wealth secret. For South Australia the records in the earlier years are somewhat irregular, and the remark applies to some extent also to the returns for Western Australia and Tasmania.

In New South Wales the yield for 1916 was about 24,000 ozs. lower than in 1915, and was the lowest recorded since 1889. In Victoria the yield for 1916 shewed a decrease of 72,415 ozs. fine on that for the preceding year. The falling-off was largely due to decreased returns from the Beechworth district, where the total yield in crude ounces was stated as 57,238 in 1916, as against 122,549 in 1915. A fall of nearly 16,000 crude ounces was shewn by the Ballarat district, but the Bendigo returns were over 30,000 ozs. in excess of those for the preceding year. In Queensland the yield in 1916 was nearly 35,000 ozs. less than in the preceding year. As is the case in other States where there is a diminishing production, the decline is due to the gradual depletion of the mines in the principal fields. There was an increase of 1688 ozs. in the returns for South Australia for 1916, the yield proving the highest for the last decennium. For Western Australia the figures shew a decrease of nearly 149,000 ozs. in 1916, as compared with.

1915, diminished returns being recorded in the outputs from all the fields except Kimberley and Phillips River. For Tasmania there was a decline of about 2700 ozs., chiefly due to diminished yields at Mathinna and the West Coast.

VALUE OF GOLD RAISED IN AUSTRALIA, 1851 to 1916.

Year.	N.S.W.	Victoria.	Q'sland.	S.A.	W.A.	Tas.	N.T.	C'wealth.
	£	£	£	£	£	£	£	£
1851 ...	468,336	851,596	...	...	...	...	...	1,319,932
1852 ...	2,660,946	9,146,140	...	...	...	...	...	11,807,086
1853 ...	1,781,172	10,976,392	...	...	...	...	...	12,757,564
1854 ...	773,209	8,873,932	...	...	...	...	...	9,647,141
1855 ...	654,594	11,277,152	...	...	...	...	...	11,931,746
1856 ...	689,174	12,214,976	...	8,800	...	...	...	12,912,950
1857 ...	674,477	11,320,852	...	876	...	...	...	11,996,205
1858 ...	1,104,175	10,384,924	...	2,348	...	...	...	11,491,447
1859 ...	1,259,127	9,394,812	...	730	...	...	...	10,654,669
1860 ...	1,465,373	8,896,276	11,631	...	...	...	...	10,373,280
1861 ...	1,806,171	8,140,692	3,137	...	...	...	...	9,950,000
1862 ...	2,467,780	6,920,804	499	12,442	...	...	...	9,401,525
1863 ...	1,796,170	6,779,276	11,820	...	...	...	...	8,587,266
1864 ...	1,804,926	6,489,788	66,513	...	...	...	...	7,861,227
1865 ...	1,231,243	6,446,216	74,216	...	...	...	...	7,751,675
1866 ...	1,116,404	6,187,792	68,325	...	...	...	...	7,372,521
1867 ...	1,053,578	6,005,784	151,125	...	...	4,382	...	7,214,869
1868 ...	994,665	6,739,672	473,956	2,936	...	2,536	...	8,213,765
1869 ...	974,149	6,179,024	417,681	15,593	...	514	...	7,586,961
1870 ...	931,016	5,217,216	390,925	24,217	...	7,475	...	6,570,849
1871 ...	1,250,485	5,475,768	492,635	6,000	...	14,218	...	7,239,106
1872 ...	1,644,177	5,325,508	527,365	6,363	...	16,055	...	7,519,468
1873 ...	1,896,375	4,681,588	572,996	293	...	18,390	...	6,669,642
1874 ...	1,041,614	4,390,572	1,062,899	4,175	...	18,491	...	6,537,751
1875 ...	877,694	4,273,668	1,196,583	7,034	...	11,982	...	6,366,961
1876 ...	613,190	3,855,040	1,140,282	9,888	...	44,923	...	5,663,323
1877 ...	471,448	3,238,612	1,043,790	...	...	23,289	...	4,777,129
1878 ...	430,300	3,032,160	1,149,240	1,225	...	100,000	...	4,712,825
1879 ...	407,219	3,035,788	1,034,216	90	...	230,895	...	4,708,208
1880 ...	444,253	3,316,484	944,869	...	...	201,297	...	4,906,903
1881 ...	573,582	3,333,512	957,570	880	...	216,901	111,945	5,194,390
1882 ...	526,522	3,458,440	785,868	3,080	...	187,337	82,274	5,043,521
1883 ...	458,530	3,121,012	736,810	10,534	...	176,442	77,195	4,580,523
1884 ...	396,059	3,114,473	1,062,471	15,469	...	160,404	77,935	4,826,810
1885 ...	378,665	2,940,872	1,062,514	18,295	...	155,309	70,414	4,626,069
1886 ...	366,294	2,660,784	1,137,189	32,535	1,148	117,250	63,139	4,428,339
1887 ...	394,579	2,471,004	1,481,930	72,003	18,517	158,533	68,774	4,665,400
1888 ...	317,241	2,500,104	1,690,477	34,205	13,273	147,154	34,802	4,737,256
1889 ...	434,784	2,459,352	2,695,629	37,305	58,871	119,703	47,651	5,853,295
1890 ...	460,285	2,354,240	2,182,563	20,808	86,664	75,888	80,769	5,261,217
1891 ...	559,231	2,305,596	2,030,312	27,380	115,182	145,459	98,701	5,281,861
1892 ...	575,299	2,617,824	2,164,391	26,097	226,284	158,917	109,658	5,878,470
1893 ...	651,286	2,684,504	2,167,794	12,661	241,385	141,326	108,130	6,186,986
1894 ...	1,156,717	2,867,816	2,330,282	33,401	787,099	217,024	109,699	7,502,038
1895 ...	1,315,929	2,960,344	2,150,561	26,060	879,748	206,115	102,816	7,641,573
1896 ...	1,073,360	3,320,348	2,132,979	14,350	1,068,808	237,574	81,210	7,828,629
1897 ...	1,104,315	3,251,064	2,552,668	39,020	2,564,977	296,660	81,210	9,889,914
1898 ...	1,201,743	3,349,028	2,750,348	10,676	3,990,698	291,496	84,789	11,678,778
1899 ...	1,623,320	3,418,000	2,838,446	15,582	6,246,732	327,545	63,565	14,533,190
1900 ...	1,070,920	3,229,628	2,871,578	14,494	6,007,610	316,220	67,988	13,578,438
1901 ...	737,164	3,109,753	2,541,764	16,613	7,235,653	295,176	76,609	14,005,732
1902 ...	684,970	3,062,028	2,720,512	24,878	7,947,761	301,573	70,325	14,811,947
1903 ...	1,080,029	3,259,482	2,839,801	26,650	8,770,719	254,403	61,600	16,294,684
1904 ...	1,146,109	3,252,045	2,714,334	39,032	8,424,226	290,015	40,926	15,897,337
1905 ...	1,165,013	3,173,744	2,517,295	29,578	8,305,654	312,380	47,246	15,550,912
1906 ...	1,078,886	3,230,478	2,313,464	47,588	7,622,749	254,963	48,864	14,646,972
1907 ...	1,050,730	2,954,617	1,978,938	24,189	7,210,749	277,607	31,580	13,518,410
1908 ...	954,864	2,849,638	1,975,554	15,148	6,999,582	242,482	38,942	13,061,700
1909 ...	869,546	2,778,956	1,935,173	30,206	6,776,374	190,201	30,906	12,611,267
1910 ...	805,211	2,429,745	1,874,355	28,000	6,246,848	157,370	27,711	11,559,840
1911 ...	769,353	2,140,855	1,640,323	15,000	5,623,075	132,108	26,702	10,547,416
1912 ...	702,129	2,039,464	1,477,979	1,125	5,445,332	161,300	20,150	9,677,407
1913 ...	635,703	1,847,475	1,125,768	27,800	5,581,701	141,876	11,085	9,374,408
1914 ...	523,873	1,755,236	1,059,574	26,581	5,237,353	111,875	10,757	8,729,949
1915 ...	562,819	1,387,793	1,060,703	25,830	5,140,228	78,784	4,182	8,270,339
1916 ...	453,370	1,090,194	913,951	33,000	4,508,532	67,072	2,554	7,074,673
Total £	61,649,740	297,794,151	79,380,926	1,007,888	129,766,685	7,806,489	2,147,803	579,553,682

The amount of gold raised in the Commonwealth in any one year attained its maximum in 1903, in which year Western Australia also reached its highest point. For the other States of the Commonwealth the years in which the greatest yields were obtained were as follows:—New South Wales, 1852; Victoria, 1856; Queensland, 1900; South Australia, 1906, and Tasmania, 1899.

The following table shews the quantity in fine ounces of gold raised in each State and in the Commonwealth during each of the last ten years, the value of one ounce fine being £4 4s. 11½d.:—

**QUANTITY OF GOLD PRODUCED IN THE COMMONWEALTH, 1907 to 1916.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Nor. Ter.	C'wealth.
	<i>Fine ozs.</i>	<i>Fine ozs.</i>	<i>Fine ozs.</i>	<i>Fine ozs.</i>	<i>Fine ozs.</i>	<i>Fine ozs.</i>	<i>Fine ozs.</i>	<i>Fine ozs.</i>
1907	247,363	695,576	465,881	5,695	1,697,555	65,354	5,031	3,182,504
1908	224,792	670,909	465,085	3,566	1,647,912	57,081	5,636	3,074,985
1909	204,709	654,222	455,580	7,111	1,595,270	44,777	7,276	2,968,945
1910	188,857	570,363	441,402	6,592	1,470,633	37,048	6,524	2,721,419
1911	181,121	504,000	386,165	3,531	1,370,868	31,101	6,286	2,483,072
1912	165,295	480,131	347,946	6,592	1,282,659	37,973	4,744	2,325,340
1913	149,657	434,933	265,735	6,545	1,314,044	33,400	2,610	2,206,924
1914	124,507	413,218	249,468	6,258	1,232,978	26,243	2,532	2,055,204
1915	132,493	329,068	249,711	6,081	1,210,112	18,547	985	1,947,002
1916	108,145	256,653	215,162	7,769	1,061,399	15,790	601	1,665,519

**3. Changes in Relative Positions of States as Gold Producers.**—A glance at the figures in the table shewing the value of gold raised will sufficiently explain the enormous increase in the population of Victoria during the period 1851 to 1861, when an average of over 40,000 persons reached the State each year. With the exception of the year 1889, when its output was surpassed by that of Queensland, Victoria maintained its position as the chief gold-producer for a period of forty-seven years, or up to 1898, when its production was outstripped by that of Western Australia, the latter State from this year onward contributing practically half, and so far as recent years are concerned more than half the entire yield of the Commonwealth. New South Wales occupied the second place on the list until 1874, when Queensland returns exceeded those of the parent State, a condition of things that has been maintained ever since. South Australia has occupied the position of lowest contributor to the total gold yield of the Commonwealth since the year 1871. Taking the average of the last ten years, the relative position of each State in regard to the gold production of the Commonwealth was as follows:—

**RELATIVE POSITION OF STATES AS GOLD PRODUCERS, 1907 to 1916.**

State.	Annual Average of Gold Production, 1907 to 1916.	Percentage on Commonwealth.	State.	Annual Average of Gold Production, 1907 to 1916.	Percentage on Commonwealth.
<b>Commonwealth ...</b>	<b>£10,462,541</b>	<b>100.00</b>	<b>New South Wales</b>	<b>£733,559</b>	<b>7.01</b>
Western Australia	5,897,303	56.37	Tasmania ...	156,028	1.49
Victoria ...	2,127,717	20.34	South Australia	25,375	0.24
Queensland ...	1,504,602	14.38	North'n Territ'y	17,957	0.17

**4. Methods of Gold Mining adopted in Each State.**—(i.) *New South Wales.* In New South Wales the earlier "rushes" were to surface alluvial or shallow-sinking grounds. Many of these were apparently soon worked out, but there is reason to believe that in some instances payable results would be obtained by treating the rejected wash-dirt on more scientific principles. With the exhaustion of the surface deposits discoveries were made by sinking to what are called deep alluvial leads, representing the beds of old drainage channels in Pliocene and Pleistocene times. The first of these deep alluvial leads was discovered at Forbes, in New South Wales, in 1862. The Tertiary deep leads at Gulgong were discovered in 1871. Cretaceous leads occur at Tibbooburra, and detrital gold has been found in permo-carboniferous conglomerates at Tal-lawang. The method of dredging is at present being extensively used for winning gold from

the beds of running streams, and from loose river flats and other wet ground where sinking would be impracticable. The system was introduced from New Zealand, where it was originally applied with great success on the Clutha River, and there are now dredges working on practically all the auriferous rivers of New South Wales. Hydraulic sluicing is employed also in several places, the necessary machinery being fitted to a pontoon for convenience in moving from place to place. The quantity of alluvial gold obtained, other than by dredging, amounted to 3433 ozs. in 1916, the chief yields being—Hill End, 204 ozs.; Windeyer, 366 ozs.; Major's Creek, 123 ozs.; Adelong, 617 ozs.; Sofala, 483 ozs.; Uralla, 183 ozs.; Tuena, 170 ozs.; Tumut, 178 ozs. The quantity obtained by dredging was 19,918 ozs.; the largest returns being obtained at Araluen, 6604 ozs.; Adelong, 6909 ozs.; Braidwood, 433 ozs.; Gundagai, 4255 ozs.; Stuart Town, 1185 ozs.; Tumbarumba, 205 ozs. The dredges in operation during 1916 numbered 68, of which 22 were of the bucket type and 47 were suction plants. In the recovery of gold 15 bucket dredges and 6 pumping plants were employed, while 6 bucket dredges and 41 pumping plants were engaged in the winning of stream tin. The value of the plants in operation was estimated at £338,486. The quantity of gold won from quartz amounted to 58,352 ozs. At the present time the Cobar district is the chief centre of the production from quartz, the yields from the Cobar and Canbelego fields included therein being respectively 7011 ozs. and 20,501 ozs. Next come the Wellington field with 9937 ozs.; Peak Hill, 4002 ozs.; Hill End, 2750 ozs.; Wyalong, 2724 ozs.; Hill Grove, 2700 ozs.; and Cootamundra, 1217 ozs. The Mount Boppy mine in the Cobar district has for some years been the premier gold mine in the State.

The table below shews as far as can be ascertained the yield from alluvial and quartz mining in each of the principal districts during 1916. Owing to the circumstance that it was impossible to obtain complete returns from all the mine and battery owners the total for the State necessarily falls short of that given in preceding pages.

**GOLD WON IN NEW SOUTH WALES, ALLUVIAL AND QUARTZ, 1916.**

District.	Alluvial.		Quartz.	Total
	Other than by Dredging.	By Dredging.		
	ozs.	ozs.	ozs.	ozs.
Albert ... ..	47	...	...	47
Bathurst ... ..	527	...	2,218	2,745
Clarence and Richmond ... ..	18	...	291	309
Cobar ... ..	...	...	27,512	27,512
Hunter and Macleay ... ..	...	...	475	475
Lachlan ... ..	110	4,255	5,076	9,441
Mudgee ... ..	489	...	14,237	14,726
New England ... ..	37	...	86	123
Peel and Uralla ... ..	352	116	2,744	3,212
Southern ... ..	278	7,232	1,149	8,659
Tambaroora and Turon ... ..	702	1,185	2,960	4,847
Tumut and Adelong ... ..	873	7,130	1,604	9,607
Total ... ..	3,433	19,918	58,352	81,703

(ii.) *Victoria.* Lode mining predominates in Victoria, although a considerable amount of gold is obtained from alluvial workings, both surface and deep leads. The deepest mines in Australia are found in the Bendigo district, where there are two shafts 4614 and 4318 feet deep respectively. Altogether there were some four years ago no less than fifty-three shafts in this district which had reached a depth of over 2000 feet. A considerable amount of attention is given to dredging and hydraulic sluicing, particularly in the Beechworth, Maryborough, Castlemaine, Ararat, Stawell, and Ballarat districts, the number of plants in operation at the end of 1916 being 67, of which 34

were bucket dredges, 21 pump hydraulic sluice, and 12 jet elevator. The total quantity of gold won by dredging and sluicing in 1916 was 48,724 ozs., the total area treated being 344 acres. Tin to the value of £11,712 was also won. The yields from alluvial workings and quartz reefs as returned (in crude ounces) from the chief mining districts of the State during last year were as follows:—

**GOLD WON IN VICTORIA, ALLUVIAL AND QUARTZ, 1916.**

District.	Alluvial.	Quartz.	Total.
	Ozs.	Ozs.	Ozs.
Ararat and Stawell ... ..	26,061	3,326	29,387
Ballarat ... ..	5,660	21,808	27,468
Beechworth ... ..	34,785	22,453	57,238
Bendigo ... ..	5,001	86,780	91,781
Castlemaine ... ..	7,104	36,999	44,103
Gippsland ... ..	1,825	6,009	7,834
Maryborough ... ..	20,551	4,432	24,983
<b>Total ... ..</b>	<b>100,987</b>	<b>181,807</b>	<b>282,794</b>

The largest output from lode mines in 1916 was furnished by the A1 Gaffney's Creek, with 11,851 ozs., followed by the Ajax Central at Daylesford, with 7350 ozs. Of the deep alluvial mines the Cathcart Central Company, at Ararat, produced 16,510 ozs. In dredging, Cock's Pioneer, at Beechworth, was the most successful, with 6706 ozs.

(iii.) *Queensland.* Operations in Queensland are at present chiefly confined to reefing, the yield from alluvial in 1916 being only 2147 ozs., while the quantity produced from stone treated was 103,320 ozs.; from copper and other ores 105,264 ozs.; and from old tailings 4431 ozs.; making a total production of 215,162 ozs., valued at £913,951. The yields from the principal fields are given below:—

**GOLD WON IN QUEENSLAND, ALLUVIAL AND QUARTZ, 1916.**

District.	Alluvial.	From Stone Treated.	From Copper and other Ores and old Tailings.	Total.
	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.
Charters Towers ... ..	252	42,154	366	42,772
Gympie ... ..	264	38,595	522	39,381
Mount Morgan ... ..	68	...	101,455	101,523
Ravenswood ... ..	51	5,455	...	5,506
Croydon ... ..	...	2,579	1,260	3,839
Etheridge, Oaks and Woolgar ... ..	196	8,637	713	9,546
Cloncurry ... ..	19	11	3,390	3,420
Gladstone ... ..	84	267	826	1,177
Clermont ... ..	289	659	977	1,925
Chillagoe ... ..	...	3,064	48	3,112
Other districts ... ..	924	1,899	138	2,961
<b>Total ... ..</b>	<b>2,147</b>	<b>103,320</b>	<b>109,695</b>	<b>215,162</b>

(iv.) *South Australia.* In South Australia alluvial gold has been worked for many years in the gullies round Adelaide, while a fair amount of gold has been obtained by this method at Teetulpa, in the northern areas. The battery and cyanide returns as published in the "Mining Review" shew that the chief producing centres in 1916 were Tarcoola, Wadnaminga, and Deloraine.

(v.) *Western Australia.* The auriferous deposits of Western Australia may be grouped under three headings—(1) Superficial deposits, (2) Deposits in beds of conglomerate, and (3) Lode and vein deposits. The first class includes a number of deposits of alluvial type, either in the beds of existing watercourses or in deep leads, up to 100 feet or more below present surface level. Associated with these are deposits of crystalline gold in “pug,” oxide of iron, and soft weathered portions of underlying bed rock. Considerable areas of auriferous surface soil are also found, and these have apparently originated from the denudation by weathering of the bed rock and its associated veins. The shallow surface deposits have been worked by ground sluicing wherever water was available, but the most of the ground has been worked by “dry-blowing.” The pug and clayey bedrock are usually treated in puddling machines or stamp batteries and Huntington mills or by a combination of both methods. In regard to (2) it may be noted that in several localities on the Pilbara goldfield and in one on the Yalgoo, gold has been found in conglomerate of the Nullagine series of rocks, now tentatively accepted as of Cambrian age. The gold is crystalline and is confined to the interstitial cementing material. Occasional occurrences of gold are met with in laterite conglomerate of tertiary and post tertiary age, and at Kintore in conglomerate of the same age. Lode and vein deposits alluded to in (3) are found in great variety in Western Australia. The gold is always found associated with iron pyrites in the un-oxidised portions of the lodes, and often also with copper pyrites, arsenical pyrites and galena. Tellurides of gold occur at times, and scheelite is a common accessory mineral. The principal auriferous rocks are of very great geological age, most probably pre-Cambrian, and possibly Archæan, and have all been subjected to intense metamorphism. It is found that the rich veins are not restricted to any one particular description of rock—granite, quartz, porphyry, quartz dolerite, diorite, etc., and even metamorphic sedimentary country rock have been found to carry them in various parts of the State. The total production of gold from all sources during 1916 was 1,061,398 ounces, of which only about 0.2 per cent. was alluvial. The yields in each district were as shewn below:—

**GOLD WON IN WESTERN AUSTRALIA, ALLUVIAL, QUARTZ, Etc., 1916.**

Goldfields.	Alluvial.	Dollied and Specimens.	Crushed.	Total.
	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.
East Coolgardie ... ..	354	1,790	577,200	579,344
East Murchison ... ..	18	898	45,895	46,811
Mount Margaret ... ..	51	675	99,886	100,612
Murchison ... ..	229	1,324	82,870	84,423
North Coolgardie ... ..	38	34	45,075	45,147
Coolgardie ... ..	146	840	12,632	13,618
Phillips River ... ..	...	...	5,419	5,419
North-east Coolgardie ... ..	...	91	6,587	6,678
Yilgarn ... ..	...	63	87,931	87,994
Broad Arrow ... ..	74	1,989	20,153	22,216
Peak Hill ... ..	44	49	2,296	2,389
Pilbara ... ..	307	...	5,575	5,882
Dundas ... ..	...	664	20,931	21,595
Yalgoo ... ..	9	142	8,044	8,195
West Pilbara ... ..	61	...	548	609
Kimberley ... ..	162	...	...	162
Other goldfields ... ..	...	...	633	633
<b>Total ... ..</b>	<b>1,493</b>	<b>8,559</b>	<b>1,021,675</b>	<b>1,031,727</b>

The figures in the previous table are compiled from returns from the individual mines and are somewhat incomplete; the total is therefore less than that shewn on page 435, which represents mint and export returns.

(vi.) *Tasmania*. The yield from Tasmania in gold mining is chiefly obtained from quartz reefing, although there is a little alluvial mining carried on, as shewn in the table hereunder. As the table shews, however, the bulk of the production of gold is obtained in connection with copper from the West Coast. The yields as returned from each district in 1916 are given below :—

**GOLD WON IN TASMANIA, ALLUVIAL AND QUARTZ, 1916.**

District.	Quartz.	Alluvial.	Cyanide.	Blister Copper.	Total.
	Ozs.	Ozs.	Ozs.	Ozs.	Ozs.
Beaconsfield ... ..	...	...	4,671	...	4,671
Mathinna ... ..	1,663	123	298	...	2,084
Mt. Victoria ... ..	323	56	...	...	379
Warrentinna ... ..					
Mt. Cameron ... ..					
Lefroy ... ..	...	22	...	...	22
Lisle... ..	...	235	...	...	235
Golconda ... ..					
Lilydale ... ..					
West Coast ... ..	10	22	...	8,803	8,835
Total ... ..	1,996	458	4,969	8,803	16,226

The total production was valued at £67,072, equal to 15,790 ozs. fine, of which about 4,671 ounces were produced by the Tasmania Gold Mine, at Beaconsfield. During the year 1916, about 9,000 ounces of gold were produced from the ores treated at the reduction works of the Mt. Lyell Mining and Railway Co. Ltd.

(vii.) *Northern Territory*. Pine Creek was for some years the chief mining field in the Northern Territory, but operations have for a long period been carried on in a desultory manner, chiefly by Chinese labour. Lately the output has fallen still lower owing to the transference of Chinese gold miners to tin and wolfram mining. It is stated that the field has been unfairly exploited, the rich pockets only having being scooped out without any systematic prospecting. Confidence in the auriferous prospects of the area was also shaken by the failure of various companies, but in the view of the Mines Department the ground has not been properly tested or systematically mined. The metal is also worked at Bridge Creek, Union Reefs, The Shackle, Fletcher's Gully and Tanami fields.

**5. Remarkable Masses of Gold.**—Allusion has already been made in preceding Year Books to the discovery of "nuggets" and other remarkable masses of gold, but it is not proposed to repeat this information in the present issue. It may be noted, however, that in 1913 nuggets yielding 180 ozs., 50 ozs., and 23 ozs. were obtained at Poseïdon in Victoria. In the same State also, and near the spot at Moliagul where the famous "Welcome Stranger," weighing 2284 ozs., was discovered in 1869, a mass of quartz yielding 94 ozs. of gold was obtained in 1913. A small lump of quartz from a mine at Tallangatta furnished 44 ozs. In an alluvial deposit at Corindhap four nuggets weighing respectively 100, 60, 60, and 30 ozs. were obtained at a depth of 13 feet.

**6. Modes of Occurrence of Gold in Australia.**—This subject has been alluded to at some length in preceding issues of the Year Book, but considerations of space will not permit of repetition in the present issue.

**7. Place of Commonwealth in the World's Gold Production.**—In the table given below will be found the estimated value of the world's gold production, and the share of the Commonwealth therein during the ten years 1907 to 1916. The figures given in the table have been compiled chiefly from returns obtained directly by the Commonwealth Bureau of Census and Statistics from the gold-producing countries of the world.



## WORLD'S GOLD PRODUCTION, 1907 to 1916.

Year.	World's Production of Gold.	Gold produced in Commonwealth	Percentage of C'wealth on Total.
	£	£	%
1907 ... ..	84,671,000	13,518,000	15.97
1908 ... ..	92,274,000	13,062,000	14.16
1909 ... ..	92,985,000	12,611,000	13.56
1910 ... ..	93,375,000	11,560,000	12.38
1911 ... ..	95,083,000	10,547,000	11.09
1912 ... ..	96,785,000	9,877,000	10.21
1913 ... ..	92,523,000	9,374,000	10.13
1914 ... ..	89,812,000	8,730,000	9.72
1915 ... ..	96,865,000	8,270,000	8.54
1916 ... ..	94,405,000	7,075,000	7.50

While the production of gold in the Commonwealth shows a considerable decrease during the nineteen years from 1897 to 1916, the world's total production more than doubled itself in the same period. The following table will be found interesting as shewing the various foreign countries where the chief increases have taken place during the interval in question:—

## INCREASE IN GOLD YIELD, VARIOUS COUNTRIES, 1897 to 1916.

Country.	1897.	1900.	1914.	1915.	1916.
	£	£	£	£	£
United States ...	11,787,000	16,269,000	19,425,000	20,761,000	19,026,000
Canada ...	1,240,000	5,742,000	3,284,000	3,900,000	3,952,000
Costa Rica ...	2,000	31,000	104,000	152,000	202,000
Colombia ...	...	...	949,000	1,121,000	*
Transvaal ...	11,654,000	1,481,000	35,657,000	38,628,000	39,490,000
Rhodesia ...	800	308,000	3,630,000	3,887,000	3,952,000
Gold Coast ...	85,000	38,000	1,744,000	1,720,000	1,630,000
Madagascar ...	8,500	142,000	222,000	286,000	195,000
India ...	1,571,000	1,893,000	2,338,000	2,370,000	2,303,000
Corea ...	208,000	371,000	680,000	765,000	*
Japan ...	142,000	290,000	1,150,000	1,331,000	*
Netherlands ...	...	...	...	...	...
East Indies ...	24,000	112,000	478,000	*	*

\* Not available.

The largest increase was recorded in the Transvaal, where the production more than trebled itself in the eighteen years 1897 to 1916.

8. **Employment in Gold Mining.**—The number of persons engaged in gold mining in each State in 1901 and during each of the last five years is shewn in the following table:—

## PERSONS EMPLOYED IN GOLD MINING, 1901 and 1912 to 1916.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Terr.	C'w'lth.
	No.	No.	No.	No.	No.	No.	No.	No.
1901 ...	12,064	27,387	9,438	1,000	19,771	1,112	200	70,972
1912 ...	3,898	11,856	3,981	920	13,700	485	263	35,103
1913 ...	3,570	11,931	3,123	800	13,445	481	175	33,525
1914 ...	3,443	10,398	2,793	375	12,110	402	180	29,701
1915 ...	2,888	8,755	2,766	200	11,323	215	99	26,246
1916 ...	2,317	6,402	1,900	150	9,563	176	99	20,607

### 3. Platinum and the Platinoid Metals.

1. **Platinum.**—(i.) *New South Wales.*—The existence of platinum was first noted in New South Wales in 1851 by Mr. S. Stutchbury, who found a small quantity near Orange. Since the year 1878 small quantities of the metal have been obtained from beach sands in the northern coastal district. Platiniferous ore was noted in 1889 at Broken Hill. The chief deposits at present worked in the State are situated at Platina in the Fifield division, near Parkes, but the entire production in 1916 was small, amounting to only 82 ozs., valued at £687, while the total production recorded to the end of 1916 amounted to 13,814 ozs., valued at £35,437.

At Platina, gold is found in association with the platinum, and it is estimated that there are 200 acres of metalliferous country sufficiently rich to yield a satisfactory return, provided it were worked on a large scale with an abundant water supply.

(ii.) *Victoria.* In Gippsland, Victoria, the metal has been found in association with copper. The production of platinum in 1913 amounted to 127 ozs., and was contained in matte produced by the Gippsland Copper, Platinum, and Gold Mining and Smelting Company, from ores raised from the old mine at Cooper's Creek. There was no production during the last three years.

2. **Osmium, Iridium, etc.**—(i.) *New South Wales.* Small quantities of osmium, iridium, and rhodium are found in various localities. As far back as 1860, the Rev. W. B. Clarke stated that he found native iridium. Platinum, associated with iridium and osmium, has been found in the washings from the Aberfoil River, about 15 miles from Oban; on the beach sands of the northern coast; in the gem sand at Bingara, Mudgee, Bathurst, and other places. In some cases, as for example in the beach sands of Ballina, the osmiridium and other platinoid metals amount to as much as 40 per cent. of the platinum, or about 28 per cent. of the whole metallic content.

(ii.) *Victoria.* In Victoria, iridosmine has been found near Foster, and at Waratah Range, South Gippsland.

(iii.) *Tasmania.*—For many years osmiridium has been known to exist in the bed of the Savage River, on the West Coast, and in rivulets and creeks in the Serpentine country, but it was not until early in 1911 that efforts were made to work the deposits. During that year the price paid for the mineral was as high as £7 10s. per oz., and about 100 men were engaged in the search for it. The quantity produced amounted to 272 ozs., valued at £1888. In 1912 the production was 779 ozs., valued at £5742, or an average of £7 7s. 9d. per oz. The production in 1913 amounted to 1262 ozs., valued at £12,016, in 1914 to 1019 ozs., valued at £10,076, in 1915 to 246 ozs., valued at £1,581, and in 1916 to 222 ozs., valued at £1,899. A specimen found by a prospector at the Whyte River weighed 2 ozs. 8 dwt. 7 gr. It is stated that the selling price has occasionally reached as high as £11 per oz., but this extraordinary value is dependent on causes which are not too well known. Owing to the war, the market in 1914 was for a time closed, but a parcel of 13 ozs. forwarded to America was sold at an average of £5 13s. 6d. per oz. The declining production in 1915 and 1916 was due to difficulty in disposing of the metal. Besides a steady and increasing use in the manufacture of fountain pens there is at present some demand for iridium and osmiridium in connection with the prevailing fashion in hard platinum jewellery.

### § 4. Silver.

1. **Occurrence in Each State.**—Particulars regarding the occurrence of silver in each State will be found in preceding Year Books, Nos. I. to V., but considerations of space preclude the repetition of this matter in the present volume.

2. **Development of Silver Mining.**—In illustration of the development of silver mining in Australia the following table has been compiled, shewing the production of silver, silver-lead and ore, and lead from each State during the years 1881, 1891, 1901, and the five years ending 1916:—

**PRODUCTION OF SILVER AND LEAD, AUSTRALIA, 1881 to 1916.**

Year.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tasmania.	North. Terr.	C'wealth.
	£	£	£	£	£	£	£	£
1881	...	5,239	13,494	1,182	11,224	...	...	31,139
1891	3,621,614	6,017	21,879	1,787	250	62,138	4,140	3,717,825
1901	1,954,964	6,550	69,234	3,886	7,718	325,335	...	2,367,687
1912	3,745,796	2,000	121,855	326	41,995	309,098	820	4,221,890
1913	4,173,867	2,074	134,121	1,400	82,422	319,997	2,228	4,716,109
1914	3,611,369	1,540	38,640	529	69,228	96,225	545	3,818,076
1915	3,321,101	1,250	34,610	902	63,629	91,689	1,073	3,514,254
1916	4,084,623	1,239	50,588	5,173	109,221	153,796	275	4,404,915

*New South Wales.* The figures quoted for New South Wales in the above table represent the *net* value of the product (excluding zinc) of the silver-lead mines of the State. In explanation of the values thus given, it must be noted that the metallic contents of the larger portion of the output from the silver-lead mines in the State are extracted outside New South Wales, and the Mines Department considered, therefore, that the State should not take full credit for the finished product. Hence the *net* value referred to above relates to that of the ore, concentrates, and bullion, as declared by the several companies to the Customs Department at date of export. The real importance of the State as a producer of silver, lead, and zinc is thus to some extent lost sight of. The next table, however, which indicates the value of these metals locally produced, and the value of concentrates exported during the last five years, will shew the estimated total value of the yield from the three metals:—

**VALUE OF PRODUCTION FROM SILVER-LEAD MINES OF NEW SOUTH WALES,  
1912 TO 1916.**

Year.	Value of Silver, Lead, and Spelter produced within the C'wealth.	Value of Concentrates Exported.	Total.
	£	£	
1912	2,477,442	3,692,352	6,169,794
1913	2,709,867	3,759,691	6,469,558
1914	2,592,322	3,004,248	5,596,570
1915	1,634,717	3,176,434	4,811,151
1916	1,079,290	3,861,018	4,940,308

As regards silver alone, the following table, which has been prepared on a basis similar to that on which the preceding table was compiled, shews the estimated total quantity and value of that metal yielded by the mines of New South Wales up to the end of 1906 and during the last ten years:—

**ESTIMATED QUANTITY AND VALUE OF SILVER YIELDED BY MINES OF  
NEW SOUTH WALES TO END OF 1916.**

Period.	Produced in Australia.		Contained in Concentrates, etc., Exported.		Total Production.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
To the end of 1906 ...	Fine ozs. 103,079,415	£ 16,356,310	Fine ozs. 114,196,466	£ 19,546,757	Fine ozs. 217,275,881	£ 35,905,067
1907 ...	5,921,457	795,982	6,228,225	845,845	12,149,682	1,641,827
1908 ...	6,484,288	693,034	5,499,381	587,768	11,983,669	1,280,602
1909 ...	3,717,016	382,605	6,867,775	732,563	10,584,791	1,115,168
1910 ...	5,196,323	561,280	7,608,336	843,257	12,804,659	1,404,537
1911 ...	5,731,468	620,578	8,797,677	973,210	14,529,145	1,593,788
1912 ...	5,220,538	641,707	8,293,711	1,036,715	13,514,249	1,678,422
1913 ...	5,908,638	719,249	8,596,251	1,038,714	14,504,889	1,757,963
1914 ...	5,481,286	630,658	7,879,240	820,754	13,360,526	1,451,412
1915 ...	3,081,952	325,210	5,222,927	544,055	8,304,879	869,265
1916 ...	1,962,091	279,592	6,107,280	839,751	8,069,371	1,119,343
Total ...	151,784,472	22,006,205	185,297,269	27,811,389	337,081,741	49,817,594

**3. Chief Centres of Silver Production.**—Broken Hill, in New South Wales, and Zeehan, in Tasmania, are the great centres of silver production in Australasia. The production in Queensland has, however, considerably expanded during the last few years.

(i.) *New South Wales.* (a) *Broken Hill.* A description of the silver-bearing area in this district is given in preceding issues of the Year Book. During 1913 the output of ore from the mines in this division amounted to 1,744,000 tons, the highest recorded in the history of the field, but owing to the dislocation caused by the war the quantity raised in 1914 decreased to 1,442,000 tons. For 1915 the production was returned as 1,505,000 tons, but the British Junction, North Junction Lead and Block 10 mines were closed throughout the year. During 1916, when the Junction North mine remained closed, the production was returned at 1,020,000 tons, but the value of the output was £4,480,000 as compared with £3,342,000 in 1915.

Although the returns are not complete in all cases, the following table relating to the mines at Broken Hill will give some idea of the richness of the field:—

**RETURNS OF BROKEN HILL SILVER MINES TO END OF 1916.**

Mine.	Authorised Capital.	Value of Output to end of 1916.	Dividends and Bonuses Paid to end of 1916.
	£	£	£
Broken Hill Proprietary Co. Ltd. ...	600,000	*44,072,310	11,110,503
Broken Hill Proprietary Block 14 Co. Ltd. ...	155,000	3,659,500	588,660
British Broken Hill Proprietary Co. Ltd. ...	339,000	3,447,020	633,800
Broken Hill Proprietary Block 10 Co. Ltd. ...	1,000,000	4,399,873	1,362,500
Sulphide Corporation Ltd. (Central Mine) ...	1,050,000	†18,352,384	2,026,875
Broken Hill South Silver Mining Co. ...	200,000	7,485,495	2,029,208
North Broken Hill Mining Co. Ltd. ...	600,000	†4,985,652	1,438,940
Broken Hill Junction Lead Mining Co. ...	150,000	†1,026,673	85,000
Junction North Broken Hill Mine ...	375,000	†1,929,412	79,793
The Zinc Corporation Ltd. ...		1,825,544	10,000
Barrier South Ltd. ...	168,000	151,157	50,000
Totals ...	4,637,000	†91,335,020	19,415,279

\* The value of the ores purchased during the years 1908 to 1914 is not included.  
understated owing to incomplete returns.

† Not available.

† Output

(b) *Yerranderie*. The mines on the Yerranderie field in the Southern Mining District produced 174,321 ozs. of silver in 1916, besides 234 ozs. of gold, and 585 tons of lead, the total production being valued at £42,000. Mining operations in this locality are carried on under considerable difficulties owing to the heavy cost of transport, the cost of cartage to and from Camden railway station—£2 5s. per ton—preventing successful exploitation of the lower grade ores.

(c) *Cobar*. A considerable quantity of silver is obtained from the Great Cobar Mine and attached properties, the production in 1914 amounting to 24,305 ozs. Owing to the dislocation of the industry caused by the war the yield in 1915 fell to 1838 ozs. but it rose again in 1916 to nearly 48,000 ozs.

(ii.) *Tasmania, West Coast*. The production of silver-lead ore in 1916 was 11,229 tons, valued at £153,796, to which the Zeehan Mines contributed £48,593. In the Mt. Farrell District the North Mt. Farrell contributed £42,651, while the Magnet Mines returned a yield of £60,660, and the Round Hill, Mt. Claude, £2984. The silver contents of the copper ores treated at the Mt. Lyell works amounted in 1916 to 328,700 ozs.

(iii.) *Queensland*. The yield for the chief silver-producing centres in 1916 was as follows:—Charters Towers, silver £2816, lead £1155; Cloncurry, silver £7664; Etheridge, silver £2817, lead £5901; Mt. Morgan, silver £4911; Herberton, silver £6293, lead £1873; Burketown, lead £9805, silver £1035.

(iv.) *South Australia*. Rich specimens of silver ore have been discovered at Miltalie and Poonana, in the Franklin Harbour district, also at Mount Malvern, near Rapid Bay, and in the vicinity of Blinman and Farina. The surrounding district is highly mineralized, but, so far, has not been thoroughly prospected. The production of silver and silver-lead ore in 1916 was valued at £5000.

(v.) *Western Australia*. The quantity of silver obtained as a by-product and exported in 1916 was 173,012 ozs., valued at £22,258. In addition, lead and silver-lead to the value of £12,033, and 3523 tons of pig lead, valued at £74,930, were exported.

(vi.) *Northern Territory*. Silver-lead ores are worked near Pine Creek, and at Mount Shoebridge near Brock's Creek railway station. About 178 tons of ore were shipped during 1916 from McCarthy's lead mine.

4. **World's Production of Silver.**—The world's production of silver during the last ten years for which particulars are available is estimated to have been as follows:—

#### WORLD'S PRODUCTION OF SILVER, 1907 to 1916.

Year ...	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.
World's production in 1000 fine ozs.*	183,386	212,570	227,291	240,223	254,214	250,979	214,391	171,429	179,754	177,000

\* Add 000 to figures for fine ounces.

Australasia's share in the world's silver production in 1915 was estimated at 4,296,000 ounces, or about 2 per cent. on the total production.

5. **Prices of Silver.**—As the production of silver is dependent to a very large extent on the price realised, a statement of the average price per standard ounce in the London market at various periods and during the last five years is given below:—

#### PRICE OF SILVER, 1881 to 1916.

Year ...	1881.	1891.	1901.	1911.	1912.	1913.	1914.	1915.	1916.
Pence per standard oz.	51 $\frac{3}{4}$	45 $\frac{1}{16}$	27 $\frac{3}{16}$	24 $\frac{9}{16}$	28 $\frac{1}{16}$	27 $\frac{9}{16}$	25 $\frac{5}{16}$	23 $\frac{1}{16}$	31 $\frac{5}{16}$

During the month of November, 1906, owing to the small sales in New York, and also to the fact that the Indian, American, and Mexican Governments were all buying silver, the price rose to 33½d., the highest realised since 1893, when the average stood at 36½d.

6. **Employment in Silver Mining.**—The number of persons employed in silver mining in 1901 and during each of the last five years is given below :—

**NUMBER OF PERSONS EMPLOYED IN SILVER MINING, 1901 and 1912 to 1916.**

Year.	N.S.W.	Victoria.	Q'land.	S Aust.	W. Aust.	Tasmania	N. Terr.	C'wealth.
	No.	No.	No.	No.	No.	No.	No.	No.
1901...	6,298	...	40	150	...	2,414*	†	8,902‡
1912...	9,062	...	208	30	60	1,681	...	11,041
1913...	9,357	...	204	30	132	1,272	16	11,011
1914...	8,242	...	130	25	100	491	10	8,998
1915...	5,564	...	49	25	70	519	86	6,313
1916...	6,461	...	62	25	\$244	555	86	7,433

\* Including copper miners. † Included in South Australia. ‡ Including copper miners in Tasmania. § Lead ore.

As the table shews, the bulk of the employment was in New South Wales and Tasmania, the quantity of silver raised in the other States, excepting Queensland, being unimportant.

**§ 5. Copper.**

1. **Production of Copper.**—The production of copper in the various States of the Commonwealth has been influenced considerably by the ruling prices, which have undergone extraordinary fluctuations. The quantity and value of the production in earlier years and for 1912 to 1916 are shewn in the following tables :—

**PRODUCTION OF COPPER, AUSTRALIA, 1881 to 1916.**

State.	1881.	1891.	1901.	1908.	1912.	1913.	1914.	1915.	1916.
QUANTITY.									
N.S.W. ... { Copper	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
{ Ore	*	*	6,087	8,679	8,990	9,153	5,081	2,463	5,617
Victoria... { Copper	*	*	645	392	2,044	308	1,526	4,510	554
{ & Ore	*	*	...	983	...	36	...	...	...
Q'land ... { Copper	330	85	3,061	14,961	23,120	23,655	18,436	19,704	19,520
S. Aust ... { Copper	3,824	3,551	6,736	6,152	6,295	7,161	6,881	7,725	7,279
{ Ore	21,638	13,239	2,353	479	28	82	183	946	457
W. Aust.... { Copper	...	...	10,157	2,503	9,536	4,339	3,913	737	650
{ Ore	...	...	9,730	8,833	6,528	6,535	7,509	7,901	6,305
Tasmania ... { Copper	...	...	10,029	1,185	...	...	3,288	66	97
{ Ore	...	...	...	...	377	41	405	1,272	48
Northern Territory	...	...	...	...	...	...	...	...	...

\* Not available

**VALUE.**

	£	£	£	£	£	£	£	£	£
New South Wales...	227,667	119,195	412,292	502,812	579,791	598,735	274,671	234,437	586,127
Victoria ...	8,186	216	...	3,928	...	2,829	...	...	...
Queensland ...	19,637	3,554	194,227	893,535	1,698,280	1,660,178	1,118,648	1,428,793	2,265,422
South Australia ...	418,296	235,317	500,077	345,968	461,500	488,986	417,487	561,247	822,527
Western Australia ...	...	4,463	75,246	57,091	59,824	142,513	38,174	91,169	64,833
Tasmania ...	...	...	609,651	...	440,444	375,664	496,041	709,534	886,454
Northern Territory	...	...	...	...	3,998	482	4,860	10,710	5,517
Commonwealth ...	673,786	362,745	2,208,590	2,412,985	3,243,837	3,269,385	2,349,881	3,035,890	4,630,880

A short account of the discovery of copper in the different States is given in the earlier Year Books.

2. **Sources of Production.**—(i.) *New South Wales.* The principal seat of the copper-mining industry at the present date is in the Cobar district, the value of the deposits there being first recognised in 1869. The value of the output from this district in 1916 was £455,240, out of a total for the State of £586,127. At the Great Cobar Mine the Company's smelters resumed operations early in January, and this increased activity, coupled with the high prices ruling for copper in 1916, resulted in the largely increased return as compared with the years 1914 and 1915.

The Cadia Copper mine, at Cadia, in the Orange division, produced 563 tons, valued at £61,932. A yield of 51 tons of matte, valued at £6,281, was obtained from the Grafton Mine at Cangai, the Mount Hope Mine at Mount Hope obtained 110 tons, valued at £8300, and the Mouramba Copper Mines at Nymagee produced 903 tons of copper, valued at £108,807.

The Electrolytic Refining and Smelting Company of Australia Limited, established at Port Kembla, produced 2310 tons of copper, valued at £261,635, from ores won in the State. The English and Australian Copper Co. Ltd., at Waratah, obtained 530 tons, valued at £55,981, from local ores.

(ii.) *Queensland.* The yield in this State amounted in 1916 to 19,520 tons, valued at £2,265,422, to which the Cloncurry field contributed 9908 tons, valued at £1,149,328. Next in order were Mount Morgan with 7646 tons, valued at £886,936; Gladstone 922 tons, £107,010; Herberton, 566 tons, £65,656, and Mount Perry, 175 tons, £20,300.

The Cloncurry district—reckoned the richest and most extensive cupriferous area in Australia—produces more than half the copper output of the State, and its yield exceeds in value the total gold output.

(iii.) *South Australia.* Taking the entire period over which production extended, the yield of copper in South Australia easily outstrips that of any other State in the Commonwealth. In recent years, however, Queensland, Tasmania, and New South Wales have come to the front as copper producers, as the table on the preceding page will shew. Deposits of copper ore are found over a large portion of South Australia. A short account of the discovery, etc., of some of the principal mining areas, such as Kapunda, Burra Burra, Wallaroo, and Moonta, is given in preceding issues of the Official Year Book. During 1916 the production amounted to 7279 tons, valued at £822,527.

(iv.) *Western Australia.* The value of copper and ore exported from this State in 1916 was £64,833. According to the returns, the production in the West Pilbara field was 949 tons, valued at £16,116, while the Phillips River field shewed a production of 5428 tons, valued at £48,618. The Peak Hill district shewed a production of 251 tons, valued at £8268, and small quantities were produced on the Murchison and Ashburton fields.

(v.) *Tasmania.* The quantity of blister copper produced in Tasmania during 1916 was 6305 tons, valued at £884,689, and of copper and copper ore, 97 tons, valued at £1765, the bulk of the production being due to the Mount Lyell Mining and Railway Co. Ltd. This Company treated 299,414 tons of ore in 1916, and produced 6305 tons of blister copper, containing copper, 6237 tons; silver, 328,700 ozs.; and gold, 8803 ozs., the whole being valued at £940,994. The employees in 1916 numbered 1651, of whom 818 were miners, 671 were engaged in the reduction works, and 162 in the railway department.

(vi.) *Northern Territory.* Copper has been found at various places, including Copperfield, 5 miles south-east of Pine Creek, Mount Diamond and Burns Wolfram, 45 miles east of Pine Creek, at Coronet Hill, Daly River, Kilgour Creek, and Woolagarang.

3. **Prices of Copper.**—The great variation in price that the metal has undergone is shewn in the following table, which gives the average price in London and New York during 1901 and in each of the last five years. The figures are given on the authority of "The Mineral Industry." No quotations were recorded for the months August, September and October, in the London price for 1914, and the average for that year is based on the returns for the remaining nine months.

#### FLUCTUATION IN VALUE OF COPPER, 1901 and 1912 to 1916.

Year.	London Price per Ton Standard Copper.	New York. Price in Cents per lb.	
		* Lake Copper.	Electrolytic Copper.
	£	Cents.	Cents.
1901 ... ..	66.79	16.55	16.11
1912 ... ..	72.94	16.56	16.34
1913 ... ..	68.35	15.69	15.27
1914 ... ..	61.52	...	13.60
1915 ... ..	72.53	...	17.28
1916 ... ..	116.06	...	27.20

\* The term "Lake" copper is used to designate all copper sold in the trade as such, regardless of the process by which it is refined. During the last five months of 1913 sales by the Lake Superior Companies were scattered and irregular.

4. **World's Production of Copper.**—The world's production of copper in 1901 and during the five years 1912-16 is estimated to have been as follows:—

#### WORLD'S PRODUCTION OF COPPER, 1901 and 1912 to 1916.

Year	...	...	...	...	1901.	1912.	1913.	1914.	1915.	1916.
World's production— (short tons)	...	...	...	...	583,517	1,114,769	1,104,517	1,018,395	1,193,114	1,564,254

5. **Employment in Copper Mining.**—The number of persons employed in copper mining during 1901 and in each of the last five years was as follows:—

#### PERSONS ENGAGED IN COPPER MINING, 1901 and 1912 to 1916.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Nor. Ter.	C'wealth.
	No.	No.	No.	No.	No.	No.	No.	No.
1901	2,964	4	814	4,000	321	*	†	8,103†
1912	2,384	6	3,457	4,500	223	1,681	52	12,303
1913	2,629	12	3,687	4,000	213	2,162	53	12,756
1914	1,357	...	2,578	3,000	192	2,099	88	9,314
1915	914	...	2,149	2,000	144	1,758	97	7,062
1916	1,661	...	2,922	2,000	113	1,719	97	8,512

\* Included with silver miners. † No returns. ‡ Excluding Tasmania and Northern Territory.



## § 6. Tin.

1. **Production of Tin.**—The development of tin mining is, of course, largely dependent on the price realised for the metal, and, as in the case of copper, the production has been subjected to somewhat violent fluctuations. The table below shows the production in each of the Commonwealth States during the years 1881, 1891, 1901, and 1912 to 1916:—

## TIN PRODUCED IN AUSTRALIA, 1881 to 1916.

State.		1881.	1891.	1901.	1912	1913.	1914.	1915	1916.
QUANTITY.									
New South Wales	Ingot	Tons. 5,824	Tons. 1,454	Tons. 648	Tons. 900	Tons. 913	Tons. 650	Tons. 857	Tons. 909
	Ore	609	203	11	1,175	2,118	1,667	1,331	1,220
Victoria ...	Ore	†	†	77	48	57	53	95	122
Queensland ...	Ore	†	†	1,661	3,230	3,197	2,085	2,125	1,707
West Australia (Ore & Ingot)	...	†	†	734	651	484	363	42	463
Tasmania ...	Ore	†	†	1,790	3,714	4,010	2,573	2,509	2,835
Northern Territory	Ore	...	†	81	271	258	180	14	270
VALUE.									
New South Wales...	Ingot	£ 531,303	£ 124,320	£ 76,086	£ 183,000	£ 182,800	£ 101,400	£ 135,350	£ 159,075
	Ore	37,492	9,643	464	155,074	238,492	165,730	131,430	117,422
Victoria ...	Ore	7,334	5,092	4,181	5,733	6,959	4,955	9,447	12,955
Queensland ...	Ore	193,699	116,387	93,723	364,503	343,665	176,197	183,472	181,401
West Australia (Ore & Ingot)	...	...	10,200	40,000	79,738	72,142	35,649	41,391	49,101
Tasmania ...	Ore	375,775	293,170	212,542	543,103	531,983	259,300	292,306	350,852
Northern Territory	Ore	...	1,938	5,586	27,001	25,526	15,200	13,245	27,120
Commonwealth	...	1,145,603	560,750	432,576	1,358,162	1,401,571	758,431	806,641	927,926

\* Dressed tin ore, about 70% tin. † Not available.

2. **Sources of Production.**—(i.) *New South Wales.* A large proportion of the output in New South Wales was obtained by dredging, the quantity so won in 1916 being 1272 tons, valued at £146,880. In the Tingha division the yield amounted to 700 tons, valued at £79,261, the yield from dredging being estimated at £59,896. The Emmaville division in the New England district shewed a yield of 1088 tons, valued at £128,406, of which dredging produced 445 tons, valued at £50,260. In the Wilson's Downfall division, 137 tons, valued at £14,605, were raised. The Glen Innes division, also in the New England district, returned a yield of 170 tons, valued at £20,787. The Ardlethan field, in the Lachlan division, produced ore and concentrates to the value of £29,593.

(ii.) *Victoria.* In Victoria lode tin has been discovered at Mt. Wills, Beechworth, Eldorado, Chiltern, Stanley, and other places in the north-eastern district; and stream tin has been found in a large number of places, including those just mentioned in the north-eastern district. The bulk of the production in 1916 was obtained in the Eldorado district. About £2000 worth was obtained at Beechworth, £1300 worth at Toora, and a small quantity at Digger's Creek.

(iii.) *Queensland.* The chief producing districts in Queensland during 1916 were Herberton, 821 tons, valued at £85,364; Stanthorpe, 309 tons, £34,542; Cooktown, 234 tons, £26,812; Chillagoe, 186 tons, £17,580; and Kangaroo Hills, 130 tons, £14,190. The production of tin was to some extent adversely affected in 1916 by the lack of skilled miners, and also by the high prices offered for several of the other industrial metals.

(iv.) *Western Australia.* The production of tin ore and ingot for the State during 1916 amounted to 463 tons, valued at £49,101, to which the Greenbushes field contributed 282 tons, valued at £27,319, and the Pilbara field 153 tons, valued at £15,939. There was no production from the other fields in 1916.

(v.) *Tasmania.* The tin ore raised in 1916 amounted to 2855 tons, valued at £350,852, as compared with the year 1913, when the production was returned as 4010 tons, valued at £531,983. The heavy decline was of course due to the paralysis of the tin market occasioned by the war, coupled to some extent with unfavourable weather conditions. The bulk of the production in 1916 came from the North-Eastern Division with 1385 tons of ore, valued at £187,023. Of the total yield in this division, 719 tons were contributed by the Pioneer and Gladstone districts, 395 tons by Derby, and 185 tons by Branhholm. The next highest output was returned from the North-Western Division with 746 tons, to which the celebrated Mt. Bischoff contributed 476 tons, and the Mt Bischoff Extended, 207 tons. In the Eastern Division, the Avoca mines produced about 211 tons.

(vi.) *Northern Territory.* Mount Wells, in the Burrundie district, has yielded a fair output of tin since 1886, and recent developments have proved that the lodes are increasing in size and quality. Copper, silver-lead and tin shows occur abundantly in the district, but little work has been done on them. The recently discovered tin field at Maranboy, about 40 miles east of the Katherine telegraph station, was the largest producer in 1916. It is stated that rapid and systematic development of the ore bodies on this field is greatly retarded by lack of capital. A fairly extensive deposit has been located at Hayes Creek, about 12 miles from Brock's Creek and only 6 miles from the railway line. Efficient prospecting would probably reveal the existence of other deposits.

3. *World's Production of Tin.*—According to "The Mineral Industry" the world's production of tin during each of the last five years was as follows:—

WORLD'S TIN PRODUCTION, 1912 to 1916.

1912.	1913.	1914.	1915.	1916.
Tons. 122,538	Tons. 124,890	Tons. 111,206	Tons. 112,819	Tons 112,741

The yields from the chief producing countries in each of the last two years were as follows:—

	1915.	1916.
Malaya ... ..	46,800	43,900
Bolivia ... ..	21,800	21,100
Banka ... ..	13,800	14,600
Siam ... ..	7,800 (a)	7,800
Cornwall ... ..	5,000	4,500
Billiton ... ..	5,800	5,000 (a)
Nigeria ... ..	4,600	5,000
China ... ..	3,000 (b)	3,800 (a)
Australia ... ..	2,300	5,000 (a)
South Africa ... ..	2,100	2,000

(a) Estimate. (b) Shipments to Europe and U.S.A.

4. *Prices of Tin.*—The average price of the metal in the London market for the year 1897 and from 1906 to 1916 was as follows:—

## PRICE PER TON OF TIN, 1897 to 1916.

Year.	Price per Ton.	Year.	Price per Ton.
	£ s. d.		£ s. d.
1897 ... ..	61 8 0	1911 ... ..	192 7 0
1906 ... ..	180 12 11	1912 ... ..	209 8 5
1907 ... ..	172 12 9	1913 ... ..	206 5 7
1908 ... ..	133 2 6	1914 ... ..	156 12 7*
1909 ... ..	134 15 6	1915 ... ..	163 19 2
1910 ... ..	155 6 2	1916 ... ..	182 1 11

\* Quotations incomplete.

According to "The Mineral Industry" the maximum price obtained for tin during the period 1897-1916 was reached in April, 1914, when the metal was quoted at £231 per ton.

5. **Employment in Tin Mining.**—The number of persons employed in tin mining in 1901 and during the last five years is shewn below:—

## PERSONS ENGAGED IN TIN MINING, COMMONWEALTH, 1901 and 1912 to 1916.

Year.	N.S.W.	Victoria.	Qld.	W. Aust.	Tas.	Nor. Ter.	C'wealth.
	No.	No.	No.	No.	No.	No.	No.
1901 ... ..	1,428	...	1,148	413	1,065	...	4,054
1912 ... ..	2,646	57	2,153	409	1,762	287	7,314
1913 ... ..	2,362	116	2,102	403	1,947	267	7,197
1914 ... ..	2,168	65	1,570	217	1,523	186	5,729
1915 ... ..	1,648	27	1,218	188	1,221	154	4,456
1916 ... ..	1,938	135	1,093	235	1,217	154	4,772

## § 7. Zinc.

1. **Production of Zinc.**—The production of spelter is practically confined to the Broken Hill district of New South Wales, where zincblende forms one of the chief constituents in the enormous deposits of sulphide ores.

Gratifying results have been achieved in the work of the profitable extraction of the zinc contents of the large heaps of accumulated tailings and from the ore raised on the Broken Hill field. The year 1909 witnessed the passing of this problem out of the experimental stage, and the practical solution of the difficulty which had confronted the mining companies for many years. At present not only is the zinc being obtained in a marketable form, but the silver and lead contents are being turned to profitable account. In 1899 the exports of zinc (spelter and concentrates) amounted to 49,879 tons; in 1909 they totalled 373,906 tons, valued at £1,041,280; and in 1916, 209,741 tons, valued at £961,849, the great bulk of the production being obtained from tailings. The following table shews the production of zinc in New South Wales from 1889 to 1916:—

## NEW SOUTH WALES.—PRODUCTION OF ZINC, 1889 to 1916.

Year.	Quantity of Zinc (Spelter and Concentrates) Produced.	Value.	Year.	Quantity of Zinc (Spelter and Concentrates) Produced.	Value.
	Tons.	£		Tons.	£
1889	97	988	1913	506,661	1,547,987
1891	219	2,622	1914	359,310	1,020,711
1899	49,879	49,207	1915	190,916	1,111,569
1912	520,518	1,766,242	1916	209,741	961,849

The total quantity of zinc (spelter and concentrates) produced in New South Wales to the end of the year 1916 was 4,086,345 tons, valued at £12,182,029.

At the Silver Spur mine at Texas, in the Stanthorpe division in Queensland, part of the ore is high in zinc and lead, but low in silver. Profitable extraction of the zinc and lead depends, however, on railway connection with the mine. Zinc sulphide is produced by the Mount Garnet mine in the Herberton district, and during 1916 several hundred tons of good quality ore were raised.

During the year 1916, a small quantity of zinc, valued at £630, was produced in Western Australia.

**2. Prices of Zinc.**—During the four years 1911 to 1914, the price of zinc averaged £23 15s. per ton, ranging from £21 in 1914 to £26 3s. 4d. in 1912. Owing to the heavy demand and other circumstances arising out of the war, the prices in 1915 and 1916 reached the very high average of £68 19s. 7d. and £71 18s. 6d. per ton. respectively.

## § 8. Iron.

**1. General.**—The fact that iron-ore is widely distributed in the Commonwealth has long been known, and extensive deposits have been discovered from time to time at various places throughout the States. It will appear, however, from what is stated below, that until quite recently, little has been done in the way of converting these deposits into a marketable commodity.

(i.) *The Manufactures Encouragement Act 1908-12.* It was hoped that the passing by the Commonwealth Parliament of the Manufactures Encouragement Act, which came into force on the 1st January, 1909, would assist in firmly establishing the iron industry in Australia on a remunerative basis, both in the smelting of pig iron and in the production of bar iron and steel from Australian ore. The Act referred to, together with its amendment in 1912, provided for the payment of bounties on iron in accordance with the terms set out hereunder :—

### BOUNTIES PAYABLE ON AUSTRALIAN PIG IRON, BAR IRON, STEEL, Etc.

Description of Goods.	Rate of Bounty.	Total Amount which may be authorised.	Date of Expiry of Bounty.
CLASS 1.			
Pig iron made from Australian ore ... ..	12s. per ton	£150,000	30th June, 1914
Puddled bar iron made from Australian pig iron ... ..	"		
Steel made from Australian pig iron ... ..	"		
CLASS 2.			
Galvanised sheet or plate iron or steel (whether corrugated or not) made from Australian ore	10 per cent. on value	£30,000	30th June, 1914
Wire netting, not being prison made and being made from Australian ore or from wire manufactured in the United Kingdom	10 per cent. on value		
Wire made from Australian ore	10 per cent. on value		
Iron and steel tubes or pipes (except riveted or cast), not more than six inches internal diameter, made from Australian pig iron or steel	10 per cent. on value		

Particulars of the bounties paid under the above Act during the half-year ended the 30th June, 1909, and during the financial years 1909-10 to 1914-15, are shewn in the following statement :—

**PARTICULARS OF BOUNTIES PAID ON PIG IRON, BAR IRON, STEEL, Etc.,  
1909 to 1915.**

Period.	Steel made from Australian Pig Iron.	Puddled Bar Iron made from Aus- tralian Pig Iron.	Pig Iron made from Australian Ore.	Galvanised Sheet Iron made from Australian Ore.	Wire netting made from wire manu- factured in the United Kingdom.	Total.
	£	£	£	£	£	£
Half-year ended 30th June, 1909	575	568	2,314	192	...	3,649
1909-10 ... ..	1,491	1,254	23,510	287	6,036	32,578
1910-11 ... ..	1,940	2,080	20,462	121	4,824	29,427
1911-12 ... ..	723	671	15,611	74	5,968	23,047
1912-13 ... ..	...	38	16,949	...	1,110	18,097
1913-14 ... ..	7,136	...	40,121	...	4,554	51,811
1914-15 ... ..	2,474	...	31,813*	...	593	34,880
Total ... ..	14,339	4,611	150,780	674	23,085	193,489

\* Including £19,808 under Iron Bounty Act, see (ii.) infra.

(ii.) *The Iron Bounty Act 1914.* This Act repealed the Manufactures Encouragement Act 1908-14, and provided for a bounty on Australian pig iron up to the end of 1916. The rate of bounty was 8s. per ton, and the total amount authorised £30,000. Provision was made for transfer, if required, to the State, of lands, buildings, etc., used in the manufacture of pig iron. During the financial year 1916-17, bounty amounting to £11,454 was paid on 28,635 tons. So far New South Wales is the only State where bounty has been claimed.

**2. Production of Iron.—(i.) New South Wales.** Reference to the extent of the deposits of iron ore in the State, and the events leading up to the establishment of ironworks at Lithgow, will be found in earlier issues of the Year Book (see No. III., p. 508). During 1916 the following materials were received at the blast furnace at the Eskbank Iron Works, Lithgow:—Iron ore, 90,182 tons; limestone, 37,565 tons; and coke, 79,518 tons. The output was 52,556 tons of pig iron, and the quantity of steel ingots made 20,762 tons. The iron ore was raised from quarries at Tallawang and Coombing Park.

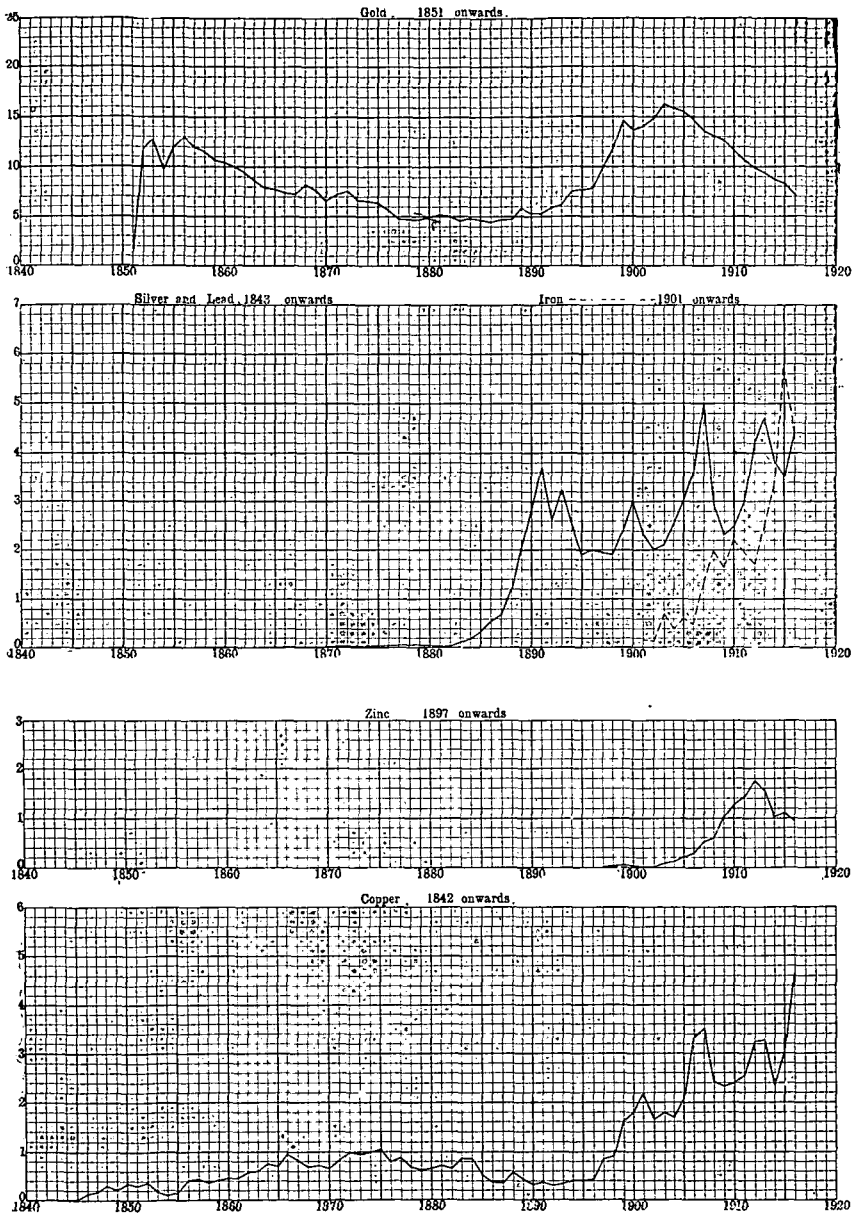
The Broken Hill Proprietary Company has established works for the manufacture of iron and steel on a large scale at Newcastle, and operations were started early in 1915. The Company is utilising the immense deposit of iron ore at the Iron Knob quarries in South Australia, abundant stores of first quality coal can be obtained from the various coalfields in the vicinity of Newcastle, and arrangements have been made for the local supply of the necessary quantities of limestone. The works have been planned so as to allow of ready extension as the business develops. During the year ended 30th November, 1917, the production of steel ingots amounted to about 130,000 tons. For the same period the blooming mill produced 134,000 tons, the rail mill 82,000 tons, the 18-inch mill 15,000 tons, and the 12-inch mill 988 tons.

The following table shews the quantity and value of finished iron, pig iron, etc., made in New South Wales during the last seven years from locally-raised ores.

**NEW SOUTH WALES.—PRODUCTION OF IRON (LOCAL ORE), 1910 to 1916.**

Particulars.	1910.	1911.	1912.	1913.	1914.	1915.	1916.
Quantity Tons	40,487	36,354	32,677	46,563	75,150	76,318	52,556
Value ... £	161,948	145,416	130,708	186,252	254,257	267,000	197,085

GRAPHS SHEWING VALUES OF THE PRINCIPAL MINERALS PRODUCED IN THE  
COMMONWEALTH, 1840 TO 1916.

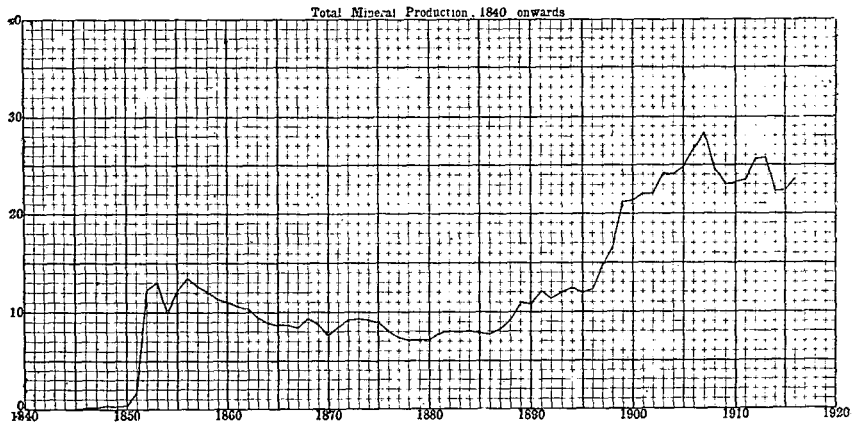
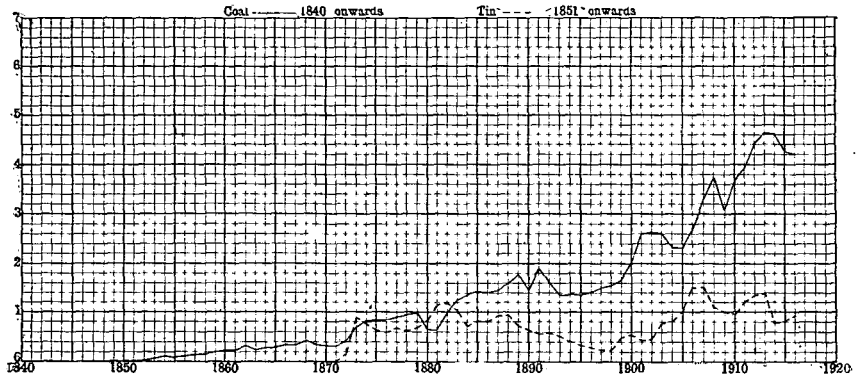


(See pages—for gold, 433; silver, 442; iron, 451; zinc, 450; copper, 445.)

**EXPLANATION OF GRAPHS**—The values shewn in the above diagrams are those of the total Commonwealth production of certain of the most important minerals in successive years from 1842 to 1916.

The base of each small square represents an interval of one year, and the vertical height represents in the case of gold £1,000,000, in the case of silver and lead, zinc, and copper £200,000, and in the case of iron £20,000.

GRAPHS SHEWING VALUES OF THE PRINCIPAL MINERALS PRODUCED IN THE  
COMMONWEALTH, 1840 to 1916.



(See pages 459 for coal ; 448, tin ; and 432 total mineral production.)

EXPLANATION OF GRAPHS—The values shewn in the above diagrams are those of the total Commonwealth production of certain of the most important minerals in successive years from 1840 to 1916.

The base of each small square represents an interval of one year, and the vertical height represents in the case of coal and tin £200,000, and in the case of total mineral production £1,000,000.

The bounty paid in 1914, 1915, and 1916 on iron and steel made from ores mined in New South Wales was as follows:—

**BOUNTY PAID ON IRON AND STEEL, NEW SOUTH WALES, 1914, 1915, and 1916.**

Description.	1914.		1915.		1916.	
	Tonnage.	Bounty.	Tonnage.	Bounty.	Tonnage.	Bounty.
Pig iron ...	58,528	£ 35,117	75,000	£ 30,000	68,512	£ 27,405
Steel ...	14,929	8,957	...	...	...	...
Total ...	73,457	44,074	75,000	30,000	68,512	27,405

A quantity of iron oxide is purchased by the various gasworks for use in purifying gas, the output in New South Wales being drawn chiefly from the deposits at Port Macquarie, while smaller quantities are obtained from Mittagong. During 1916 the iron oxide raised amounted to 2461 tons, valued at £2695, while the total output to the end of that year was 25,000 tons, valued £46,000. Up to the end of 1912 a certain amount of ironstone was raised each year for fluxing purposes, but as the smelting companies obtained suitable ores for treatment there was no subsequent production till 1916, when 1472 tons, valued at £1083, were raised. The total raised for the period 1899-1916 amounted to 108,000 tons, valued at £83,000.

(ii.) *Victoria.* Iron ore has been located at various places in Victoria, particularly at Nowa Nowa, in the Gippsland district, and at Dookie. A blast furnace was erected in 1881 near Lal Lal, on the Moorabool River, and some very fair quality iron was produced, which was used for truck wheels and stamper shoes in the Ballarat mines. The fall in the price of the metal, however, led to the closing of the works. In his report for 1905 the Secretary for Mines states that without special assistance to the industry there does not seem to be any prospect of the deposits being profitably worked.

(iii.) *Queensland.* Queensland possesses some extensive deposits of iron ore, which is mined chiefly for fluxing purposes in connection with the reduction of gold and copper ores. During the year 1916, 44,161 tons of ironstone, valued at £37,781, were raised, of which 35,734 tons, valued at £35,036, came from the Rockhampton district, and about 8000 tons, valued at £2700, from the Cloncurry field.

(iv.) *South Australia.* South Australia possesses some rich deposits of iron ore capable of being mined for an indefinite period. The best known deposit is the Iron Knob, a veritable hill of iron of high percentage, situated about forty miles W.S.W. from Port Augusta. The estimated quantity of iron ore in sight at the Iron Knob and Iron Monarch has been set down at 21,000,000 tons. The Broken Hill Company utilises ore from this quarry at its ironworks at Newcastle, New South Wales, and the amount raised for the year ended November, 1917, was nearly 300,000 tons, of which about 224,000 tons were used at the works.

(v.) *Western Australia.* This State has some very rich deposits of iron ore, but owing to their geographical position, the most extensive fields at the present time are practically unexploited, the production in the State being confined chiefly to that needed for fluxing purposes. The Murchison field possesses some extensive deposits of high-grade ore. There are also deposits on Koolan Island at Yampi Sound.



(vi.) *Tasmania.* The existence of large quantities of iron ore in Tasmania was noted as far back as 1822, when Surveyor-General Evans alluded to the "surprising abundance of iron within a few miles of Launceston." A company known as the Tasmanian Charcoal Iron Company was formed to work these deposits, and commenced operations in June, 1876. Unfortunately, however, the presence of chromium rendered the pig iron so hard and brittle that the works had to be abandoned. Extensive deposits of specular iron ore are also found in the neighbourhood of the Blythe and Gawler Rivers. The total production of iron ore in 1908 was 3600 tons, valued at £1600, and was all raised by the Tasmanian iron mine at Penguin, but owing to the closing down of that mine in 1909, there has been no further production. Iron pyrites for the manufacture of sulphuric acid and of manures is produced on the West Coast, the quantity raised in 1916 being 14,005 tons, valued at £13,597.

(vii.) *Northern Territory.* Large bodies of rich ironstone have been discovered in various parts of the Territory, particularly between the Adelaide River and Rum Jungle. Owing to the lack of coal deposits, however, the deposits possess no immediate value.

(viii.) *World's Production of Iron, 1915.* The quantity of iron produced in Australia is but a very small proportion of the world's production, which in 1915 amounted to 64,516,000 metric tons (pig iron). The leading position for magnitude of production is held by the United States, which in 1915 produced 30,000,000 tons, compared with Germany's 11,790,000 tons, and the United Kingdom's 8,793,000 tons. The position of the three countries named is similar to what it has been for several years past. Unfortunately, complete returns for a later year than 1911 are not available in regard to steel, but the production for that year is given as 58,276,000 metric tons.

## § 9. Other Metals.

1. **Antimony.**—This metal is widely distributed in the north-eastern portion of New South Wales, between the 148th meridian and the coast, and has been found native at Lucknow, near Orange. Dyscrasite, a silver antimonide, has been found in massive blocks in the Broken Hill lodes. The export of antimony (metal and ore) in 1916 amounted to 616 tons, valued at £13,334. The ore was raised mainly in the Hillgrove division, where it is found in association with scheelite and gold. The total quantity of antimony ore raised in New South Wales up to the end of 1916 was 17,961 tons, valued at £331,948. The production of antimony ore in Victoria during 1916 amounted to 12,382 tons, valued at £77,275. The whole of this ore was raised by a company operating at Costerfield. In Queensland extensive deposits were discovered at Neerdie, in the Wide Bay district, during 1872, also at Wolfram Camp on the Hodgkinson field, on the Palmer River, in the Ravenswood district, and on the Mitchell River in the Herberton district. Ore has also been obtained in the Dividing Range near Herberton, and adjacent to some of the central tributaries of Emu Creek. Production in 1916 amounted to 192 tons, valued at £3965. In Western Australia lodes of stibnite carrying gold have been found in the Roeburne district. During 1916, 27 tons of antimony, valued at £580, were exported.

2. **Arsenic.**—In the form of arsenopyrite, arsenic is of wide distribution in Victoria, but the deposits are worked to a limited extent only. At Ballarat a small quantity of the oxide is obtained from the flues of roasting furnaces.

3. **Barium.**—A valuable lode of barium sulphate has been discovered near Dalwin, on the North Lyell railway, in Tasmania. It is stated that the lode is from 2½ to 7 feet wide over a length of over 40 chains.

4. **Bismuth.**—This metal has been found in New South Wales, near Glen Innes, in the Deepwater division, and also at Whipstick, in the Pambula division, its discovery dating from 1877. About 30 tons of metal and ore, valued at £5473, were exported from New South Wales during 1916; the total quantity exported to the end of that year was

618 tons, valued at £143,030. In Queensland wolfram and bismuth have been found in various districts, but the chief centres of production in 1916 were the Herberton and Chillagoe fields. The total production in 1916 was valued at £78,412, of which £57,813 was returned as wolfram, £1530 as bismuth, and £19,069 as bismuth and wolfram. In South Australia deposits are found at Balhannah, at Mount Macdonald, and at Murnin-nie, on the shores of Spencer's Gulf. In Tasmania  $3\frac{1}{2}$  tons, valued at £1059, were raised in 1916, principally from the Shepherd and Murphy mine at Middlesex.

5. **Chromium.**—In New South Wales chromium is found at Bowling Alley Point, on the Peel River, at Barraba, at Gordon Brook, in the Clarence River district, at Bingara, Wallendbeen, and near Gundagai. The production during recent years has been trifling, the quantity raised in 1916 being 450 tons, from an area at Wood's Reef, Barraba. The total exports to the end of 1916 amounted to 31,985 tons, valued at £102,617. Chrome iron ore is found in Queensland in the Rockhampton district, where the Elgalla mine, at Cawarral, produced a small quantity in 1911.

6. **Carnotite.**—A discovery of carnotite ore was made in 1906 twenty miles E.S.E. from the Olary railway station in South Australia. (See also "Radium.")

7. **Cobalt.**—This metal was found at Carcoar in New South Wales in 1889, and subsequently at Bungonia, Port Macquarie, and various other places. There was no export of cobalt in 1915, and the total produced since 1860 amounted in value to only a little over £8000. Deposits have been noted in South Australia near Bimbourie and South Blinman; in Western Australia at Norseman and Kanowna; and at various places in Victoria.

8. **Lead.**—This metal was first noted in New South Wales in 1849, when small specimens of native metal were found by the Rev. W. B. Clarke. At present lead mining *per se* is not practised to any extent in the Commonwealth, the supply of the metal being chiefly obtained in conjunction with silver. In New South Wales, lead in the form of pig, carbonate, and chloride, exported in 1916, amounted to 25,466 tons, valued at £799,632. The total lead exported to the end of 1916 was 243,506 tons, valued at £4,225,830. In Victoria oxides, sulphides, and carbonates of lead are found in the reefs of most of the goldfields. The deposits are not, however, of sufficient extent to repay the cost of working. In Queensland the deposits are worked chiefly for the silver, copper or gold contents of the ore, the lead produced in 1916 amounting to 615 tons, valued at £19,193, of which 314 tons were produced in the Burketown district, 189 tons at Etheridge, and 65 tons were recorded from the Herberton area. Pig lead to the value of £74,930 was exported from Western Australia in 1916. Complete information is not available as to the lead contents of Tasmanian silver-lead ores. At one time South Australia produced a fair amount of lead, £22,303 worth being raised in 1902, but the production rapidly decreased, and no output has been recorded since 1910.

9. **Mercury.**—In New South Wales mercury was first recorded by the Rev. W. B. Clarke in 1841. Cinnabar has been found in lodes and impregnations at various places, such as Bingara, Clarence River, etc. Up to the present the production of quick-silver has been small, the total being only about 3000 lbs. During 1916 the Pulganbar Company raised 200 tons of ore from their mine at Ewengar in the Drake division. The mercury produced was valued at £180. In Victoria native mercury and cinnabar have been found at Silver Creek, a tributary of the Jamieson River. Lodes of cinnabar have been found in Queensland at Kilkivan, and at Black Snake, in the Wide Bay district; about four tons were produced between 1874 and 1891. Between O.K. and Mungana several shows have been prospected with encouraging results. Small quantities have been found disseminated over a large area near Willunga in South Australia, and it is also found in New Guinea.

10. **Manganese.**—Ores of this metal occur in widely separated districts in New South Wales, but the low price of the metal precludes mining to any great extent, and the production to date has been trifling. During 1916, 1924 tons, valued at £1443, were

raised at Grenfell. In Queensland there are extensive deposits at Mount Miller, and at Gladstone, the production in 1916 being 643 tons, valued at £2793. Small quantities of manganese ore were raised in Victoria during 1916 from mines in the vicinity of Heathcote. Extensive deposits of the ore were mined at Boolconda in South Australia some years ago. Deposits have also been noted at Kangaroo Island, Quorn, Tumby, and various other parts of the State. The production in 1916 was valued at £2700. In Western Australia ores of the metal are found widely scattered, the black oxide being especially plentiful in the Kimberley district.

11. **Molybdenum.**—In New South Wales molybdenite (associated with bismuth) is obtained at Kingsgate, near Glen Innes, at Deepwater, at Rocky River in the Tenterfield division, in the Bathurst division, and at Whipstick in the Pambula division, the export in 1916 being 54 tons, valued at £22,066, as compared with 32 tons, valued at £16,937, in the previous year. The production at Kingsgate was valued at about £7400. In the Deepwater division £5000 worth was obtained. A small quantity was also obtained in the Tenterfield division. The Whipstick mines yielded 25 tons of molybdenite, valued at £9900. There was a small production from Yetholme in the Bathurst division. The production in Queensland for 1916 was 81 tons, valued at £34,369, practically the whole of which was contributed by the mines in the Chillagoe field. A small quantity was produced in 1914 from mines in the Moonta district in South Australia, and the occurrence of the metal is reported from various other localities. Molybdenite occurs in small quantities at various localities in Western Australia, and an attempt is being made to open up a deposit at Mulgine, on the South Yalgoo goldfield.

12. **Radium.**—(i.) It is reported that there have been several definite discoveries in Australia of the occurrence of minerals containing radium. The discovery at Olary, in South Australia, of carnotite, which is an alteration product of pitchblende, the compound from which radium is obtained, has already been referred to. In 1910 pitchblende was identified in portion of the workings at Olary, and a specimen, exhibiting a high degree of radio-activity was obtained. This is the first authentic discovery of the mineral pitchblende in Australia. The deposits of radio-active uranium ores found at Radium Hill were mined during the last few years, and the concentrates forwarded to Sydney for treatment at the company's works at Woolwich. As noted in (ii) below operations are at present at a standstill. Monazite from Pilbara, Western Australia, has been shewn to give off radium emanations. The mineral has been called "pilbarite." Lastly, it is stated that the ores obtained at the Moonta mines, South Australia, contain from one-tenth to one-fifteenth of the amount of radium found in high-grade pitchblende, and that a product having a fairly high degree of radio-activity can be extracted therefrom with comparative ease.

(ii.) *Production of Radium Bromide.* At the end of November, 1912, a small quantity of radium bromide was produced at the Radium Hill Co.'s works at Woolwich, Sydney, this being the first occasion on which a marketable amount of this salt has been obtained outside of Europe. It is estimated by the chemist in charge that the present plant at the works is capable of providing £600 worth of radium weekly. From the 30th June, 1913, to the end of May, 1914, the works produced 239 milligrams of high grade radium preparation. The industry, however, is at present inactive in consequence of the war.

13. **Tungsten.**—Wolfram and scheelite, the principal ores of tungsten, are both mined to a small extent in New South Wales. During 1916 the export of wolfram was 183 tons, valued at £31,163, and of scheelite 81 tons, valued at £13,719. Wolfram was mined chiefly at Torrington, in the Deepwater division, and scheelite at Hillgrove. In Victoria small quantities of ore were raised during 1916 at Bendoc. In Queensland, tungsten ores are found in several districts, the chief centres of production in 1916 being Chillagoe and Herberton. (See also Bismuth.) A deposit of wolfram was discovered near Yankalilla, in South Australia, as far back as 1893, but the production up to date has been small. It is believed that careful examination will lead to

increased production from the deposits at Callawonga Creek. In the Northern Territory wolfram to the value of £20,000 was obtained in 1916 chiefly from the Burns Wolfram mine, 40 miles east of Pine Creek, from Yenberrie in the same district, and from Hatches Creek about 800 miles south-east of Darwin. Numerous samples of good wolfram ore have been obtained at the Frew River in Central Australia.

In Western Australia a deposit of wolfram was discovered in the West Kimberley district about 70 miles to the north-east of Derby. The export in 1916 was, however, trifling. Wolfram is mined at various points in Tasmania, the production for 1916 being 106 tons, valued at £16,910, obtained chiefly at Avoca and from the Shepherd and Murphy mine at Middlesex. Scheelite has been discovered on King Island in Bass Strait.

14. **Tantalum.**—Tantalite in small quantities has been found in the Greenbushes mineral field of Western Australia for some time past, but recently a lode of fairly extensive proportions was located at the Wodgina tinfield. Up to the end of 1905 the production of this mineral in Western Australia amounted to 73 tons, valued at about £10,000, but early in 1906 it was found that the supply exceeded the demand and production was temporarily stopped; in 1908 a small quantity valued at £400 was exported. About £327 worth was reported as having been raised in the Greenbushes and Pilbara fields during 1909, but none was exported owing to the entire absence of any market. No further production was recorded until 1916, when 47 tons, valued at £9375, were exported, consisting of ore which had been raised some years previously at Wodgina, in the Pilbara field. Small quantities of the mineral are also found in the Northern Territory.

15. **Uranium.**—This mineral has been discovered in South Australia in the country between Mount Painter and Mount Pitts, about 80 miles east from Farina. The uranium ores occur most frequently in the form of torbernite and autunite, and are found over a considerable area. The discovery is therefore of considerable importance, since ores of this mineral are found to a very limited extent in other parts of the world, and radium is regarded as one of the products of disintegration of uranium.

In addition to the metals enumerated above there is a large number of others occurring in greater or less degree, while fresh discoveries are being constantly reported.

## (B). NON-METALLIC MINERALS.

### § 10. Coal.

1. **Production in each State.**—(i.) *Historical.* A historical account of the discovery of coal in each State will be found in preceding issues of the Year Book. (See No. III., pp. 515-6.)

(ii.) *New South Wales.* The production in 1916 amounted to 8,127,161 tons, valued at £3,336,419, or a decrease of about 1,322,000 tons in quantity, and £88,000 in value, as compared with the output in 1915. The decreased return in 1916 is accounted for largely by the lessened production from the Northern District Collieries consequent on the restriction of the export trade owing to the war.

(iii.) *Victoria.* During 1916, 420,098 tons of coal were raised, valued at £216,875. Of this total 354,146 tons, valued at £173,839, were raised by the State coal mine at Wonthaggi. The total production for 1916 was about 171,000 tons lower than in the preceding year.

(iv.) *Queensland.* The quantity of coal raised in 1916 was 907,727 tons, valued at £389,348, this production being smaller than in 1914 and 1915. Cessation of operations in consequence of an industrial dispute was chiefly responsible for the decreased output. Twenty-nine collieries were working in the Ipswich district, seven on the Darling Downs, four in the Maryborough district, one each in the Rockhampton and Chillagoe districts, and four at Blair Athol. The industry is at present in a very satisfactory position in the northern State, and owing to the wide area over which the deposits stretch, practically no limit can be set to its possibilities of extension.

(v.) *Western Australia.* Five collieries were in operation on the Collie field during 1916, and the output for the year was 301,526 tons, or about 15,000 tons more than in 1915.

(vi.) *Tasmania.* The principal collieries in Tasmania are the Cornwall and Mount Nicholas, the former producing 23,000 and the latter 31,000 tons out of a total yield in 1916 of 56,000 tons.

The quantity and value of coal produced in each State and in the Commonwealth at various periods since 1881, are shewn in the following table:—

### PRODUCTION OF COAL, AUSTRALIA, 1881 to 1916.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'w'lth.
QUANTITY.							
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1881 ... ..	1,769,597	...	65,612	...	...	11,163	1,846,372
1891 ... ..	4,037,929	22,834	271,603	...	...	43,256	4,375,622
1901 ... ..	5,968,426	209,329	539,472	...	117,836	45,438	6,880,501
1912 ... ..	9,885,815	593,155	902,166	...	295,079	53,560	11,729,775
1913 ... ..	10,414,165	596,896	1,037,944	...	313,818	55,043	12,417,866
1914 ... ..	10,390,622	620,251	1,053,990	...	319,210	60,794	12,444,867
1915 ... ..	9,449,008	590,968	1,024,273	...	286,666	64,536	11,415,451
1916 ... ..	8,127,161	420,098	907,727	...	301,526	55,575	9,812,087
VALUE.							
	£	£	£	£	£	£	£
1881 ... ..	603,248	...	29,033	...	...	4,465	636,746
1891 ... ..	1,742,796	19,731	128,198	...	...	17,303	1,908,028
1901 ... ..	2,178,929	147,228	189,877	...	68,561	18,175	2,602,770
1912 ... ..	3,660,015	259,321	338,264	...	135,857	24,568	4,418,025
1913 ... ..	3,770,365	274,940	403,767	...	153,614	25,367	4,628,053
1914 ... ..	3,737,761	289,099	416,292	...	148,684	27,853	4,619,689
1915 ... ..	3,424,630	275,343	409,342	...	137,659	30,418	4,277,592
1916 ... ..	3,336,419	216,875	389,348	...	147,823	27,736	4,118,201

The Victorian figures for 1916 include about 2900 tons of brown coal, valued at £580, raised at Altona.

2. *Distribution and Quantity of Coal in each State.*—(i.) *New South Wales.* Estimates have from time to time been made as to the total quantity of coal available for working in the deposits in New South Wales, and while these naturally differ to some extent, they agree in placing the amount at well over a thousand million tons, without taking into consideration the deposits existing below a depth of 4000 feet. According to Mr. E. F. Pittman, the coal-bearing rocks of New South Wales may be classified as follows:—

### COAL-BEARING ROCKS OF NEW SOUTH WALES.

Geological Age.	Maximum Thickness of Coal-bearing Strata.	Locality.	Character of Coal.
I. Tertiary—Eocene to Pliocene ...	Approx. 100 ft.	Kiandra, Gulgong, and Chouta Bay	Brown coal or lignite.
II. Mesozoic—Triassic or Trias-Jura	2,500 ..	Clarence and Richmond Rivers	Coal suitable for local use only.
III. Palæozoic—Permo-Carboniferous	13,000 ..	Northern, Southern and Western Coalfields	Good coal, suitable for gas, household and steaming.
IV. Palæozoic—Carboniferous ...	10,000 ..	Stroud, Bullah Dellah.	Very inferior coal with bands; of no value.

In regard to the Tertiary deposits, it may be noted that no serious attempt has been made to use the coal as fuel in New South Wales. At Kiandra a deposit of lignite was found to possess a maximum thickness of 30 feet, but as a general rule the seams vary

from 3 to 4 feet in thickness. The Triassic or Trias-Jura deposits in the Clarence and Richmond districts contain numerous seams, but the coal is largely intersected by bands, while its large percentage of ash renders it unfit for use as fuel for industrial purposes. These beds extend under the great western plains, but the presence of artesian water precludes the possibility of their being worked. The Clarence basin extends into Queensland, and at Ipswich thick and valuable seams of coal are worked. It is in the Permo-Carboniferous division that the great productive coal seams of the State are found, the area which they cover being estimated at about 16,550 square miles. The deepest part of the basin is somewhere in the vicinity of Sydney, where the "Sydney Harbour Colliery" is working the top seam at a depth of 2884 feet. Towards the north, south and west the seams rise towards the surface, and outcrop in the neighbourhood of Newcastle, Bulli and Lithgow. The coal from the various districts embraced in this division differs considerably in quality—that from the Newcastle district being especially suitable for gas-making and household purposes, while the product of the Southern (Illawarra) and Western (Lithgow) is an excellent steaming coal. At the present time the Greta coal seams are being extensively worked between West Maitland and Cessnock, and this stretch of country, covering a distance of fifteen miles, is now the most important coal mining district in Australasia. The Permo-Carboniferous measures have in various places been disturbed by intrusions of volcanic rocks, which in some instances have completely cindered the seams in close proximity to the intrusive masses, while in other instances the coal has been turned into a natural coke, some of which has realised good prices as fuel.

The table hereunder gives the yields from the various divisions at intervals from 1881 to 1916:—

**COAL RAISED IN NEW SOUTH WALES, 1881 to 1916.**

District.	1881.		1901.		1911.		1916.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Tons.	£	Tons.	£	Tons.	£	Tons.	£
Northern ...	1,352,472	437,270	3,999,252	1,669,519	5,793,646	2,320,673	5,311,832	2,406,266
Southern ...	253,283	115,505	1,544,454	407,196	2,066,621	636,163	1,848,933	660,761
Western ...	163,842	50,473	424,720	102,214	831,337	210,329	966,396	269,393
Total ...	1,769,597	603,248	5,968,426	2,178,929	8,691,604	3,167,165	8,127,161	3,336,419

*Sydney Harbour Colliery.* This colliery possesses considerable interest from the circumstance that its workings are amongst the deepest in the world. Extended reference to the history of its opening will be found in preceding Year Books. (See No. VI., page 504.)

(ii.) *Victoria.* The deposits of black coal in Victoria occur in the Jurassic system, the workable seams, of a thickness ranging from two feet three inches to six feet, being all in the Southern Gippsland district. Deposits of brown coal and lignite of immense extent occur in gravels, sands, and clays of the Cainozoic period throughout Gippsland, Mornington Peninsula, Werribee Plains, Gellibrand, and Barwon and Moorabool basins. In the Latrobe Valley the beds reach a thickness of over 800 feet. When dried, the material makes good fuel, but owing to its excessive combustibility and friability requires to be consumed in specially constructed grates. Attempts have been made to manufacture briquettes from the brown coal, but so far without any great measure of success. At the Melbourne and Altona Colliery Company's mine at Altona, 2915 tons of brown coal, valued at £583, were raised in 1916. In 1917 an Advisory Committee appointed to report on the brown coal deposits of Victoria recommended the establishment of an open-cut mine at Morwell in connection with a comprehensive scheme for electrical power generation and transmission, as well as for the supply of brown coal for other requirements.

The output of coal from the chief Victorian collieries during the last ten years was as follows:—

### PRODUCTION OF COAL IN VICTORIA, 1907 to 1916.

Year.	State Coal Mine.	Outtrim Howitt Company	Jumbunna Coal Company	Coal Creek.	Silkstone Co-operative Company	Austral Coal.	Other Companies.	Total Production.	Value.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	£
1907	...	64,088	61,755	3,762	7,565	...	1,470	138,635	79,706
1908	...	47,633	58,552	...	6,967	...	810	113,962	64,778
1909	2,946	44,156	65,945	3,265	...	10,631	1,730	128,673	76,945
1910	201,053	46,832	61,954	10,968	...	36,052	13,050	369,909	189,254
1911	506,059	28,359	57,397	4,589	...	34,607	28,987	659,998	301,141
1912	455,659	24,326	53,806	4,829	...	31,506	23,529	593,155	259,321
1913	486,238	22,460	38,795	6,218	...	33,462	9,723	596,896	274,940
1914	550,107	16,597	24,236	5,887	...	20,034	3,390	620,251	289,099
1915	528,922	7,500	28,160	6,338	...	16,229	3,819	590,968	275,343
1916	354,146	...	31,792	5,688	...	10,885	17,587	420,098	216,875

Included in the total for "other companies" is an amount of 14,672 tons raised by the Powlett North and Woolamai, and 2915 tons of brown coal raised by the Melbourne and Altona Colliery Co. at Altona.

(iii.) *South Australia.* The coal from Leigh's Creek in South Australia is subject to similar disabilities to those of the Victorian brown coal, and until some means are devised of overcoming these, production will probably languish. Arrangements have been made for opening up a deposit of brown coal at Bowen, on the Morgan Railway Line, about 87 miles from Adelaide.

(iv.) *Queensland.* In Queensland the coal-bearing strata are of vast extent and wide distribution, being noted under the greater portion of the south-eastern districts, within 200 miles of the sea, as far north as Cooktown, and under portions of the far western interior. The Ipswich beds are estimated to occupy about 12,000 square miles of country, while the Burrum fields occupy a considerably larger area. At Callide, fifty miles west of Gladstone, a seam of coal free from bands has been struck in a shaft only sixty feet deep, and borings have proved the deposit to be of considerable magnitude. The beds in the Cook district are estimated to comprise rather more than 1000 square miles, but coal measures extend to the south-west far beyond Laura and to the north of the railway. Extensive beds occur in the basin of the Fitzroy River, in the Broadsound district, and at the Bowen River. Amongst other places where the mineral is found may be enumerated Clermont, the Palmer River, Tambo, Winton, Mount Mulligan, and the Flinders River. Boring operations have proved the existence of seams of workable coal for some distance on both sides of the Dawson River. A bituminous coal is yielded by the Ipswich seams, those of the Darling Downs yield a cannel, while anthracite of good quality is furnished by the Dawson River beds.

The quantity and value of coal raised in Queensland at various periods since 1861 were as shewn below:—

### PRODUCTION OF COAL IN QUEENSLAND, 1861 to 1916.

Year.	...	...	1861.	1871.	1881.	1891.	1901.	1916.
Quantity	...	Tons	14,212	17,000	65,612	271,603	539,472	907,727
Value	...	£	9,922	9,407	29,033	128,198	189,877	389,348

The distribution of production during the last three years was as follows:—

**QUEENSLAND COLLIERIES, 1914, 1915 and 1916.**

Collieries.	1914.		1915.		1916.	
	Tons Raised.	Average Value at Pit's Mouth.	Tons Raised.	Average Value at Pit's Mouth.	Tons Raised.	Average Value at Pit's Mouth.
Ipswich ...	718,205	s. d. 7 1	682,491	s. d. 7 3	583,692	s. d. 7 11
Darling Downs ...	105,645	8 9	97,411	8 11	99,511	9 10
Nundah (Brisbane)	625	5 3	...	...	...	...
Wide Bay and Maryborough ...	118,120	11 4	104,358	11 10	79,726	12 2
Rockhampton (central) ...	7,818	8 9	6,741	8 6	5,034	9 6
Clermont ...	102,980	8 5	123,731	7 8	124,483	7 9
Mount Mulligan (Chillagoe) ...	597	17 2	9,541	12 7	15,281	13 4
Total... ..	1,053,990	7 11	1,024,273	8 0	907,727	8 7

It is estimated that more than one-third of the production from Ipswich was shipped as bunker coal, while the total amount shipped at the Brisbane railway wharves for bunkers, cargo, and other purposes was returned at 222,000 tons. The average value of Queensland coal in 1916 was the highest recorded for the last seventeen years.

(v.) *Western Australia.* The coal seams in Western Australia belong to the Carboniferous, Mesozoic, and Post-tertiary ages. Most of the coal contains a large proportion of moisture, and belongs partly to the hydrous bituminous and partly to the lignite class. The only coalfield at present worked is at Collie, in the Permo-Carboniferous beds. The coal produced is bright and clean, but very fragile when free from moisture. The increased output up to 1914 is partly due to the establishment of a bunkering trade at Bunbury and Fremantle, and partly to the employment of improved machinery. Difficulties with an inflow of water on the Scottish Collieries and a falling-off in the bunkering trade were responsible for the diminished returns in 1915. The production from this field since 1901 was as follows:—

**PRODUCTION OF COAL IN WESTERN AUSTRALIA, 1901 to 1916.**

Year ... ..	1901.	1910.	1911.	1912.	1913.	1914.	1915.	1916.
Quantity Tons	117,836	262,166	249,890	295,079	313,818	319,210	286,666	301,526
Value £	68,561	113,699	111,154	135,857	153,614	148,684	137,859	147,823

(vi.) *Tasmania.* In Tasmania coal occurs in the following geological periods:—  
 (1) Permo-Carboniferous: Lower Coal Measures. (2) Mesozoic: Upper Coal Measures.  
 (3) Tertiary: Brown Coal and Lignite deposits. Permo-Carboniferous coal is found at Avoca, Mt. Nicholas and Fingal, Thomson's Marshes, Langloh, Seymour, York Plains, Mike Howe's Marsh, Longford, Colebrook, Schouten Island, Spring Bay and Prosser's Plains, Compton and Old Beach, Lawrenny, Longhole, Sandfly, Ida Bay, Hastings and Southport, Recherché and South Coast, Tasman's Peninsula. Deposits of lignite and brown coal are plentiful in beds of Tertiary age, but they have not been exploited to any extent. An estimate gives the approximate quantity of coal available as sixty-five million tons, of which eleven millions are in the Lower Coal Measures and fifty-four millions in the Upper Measures, exclusive of an unknown quantity in strata fringing the Central Tiers.



### PRODUCTION OF COAL IN TASMANIA, 1901 to 1916.

District.	1901.	1910.	1911.	1912.	1913.	1914.	1915.	1916.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
North-western ...	2,952	1,720	1,496	956	1,167	1,074	270	673
North-eastern ...	37,239	71,115	54,296	51,205	52,759	58,743	63,507	54,284
Midland ...	1,536	721	635	679	847	847	691	598
South-eastern ...	...	8,899	640	720	270	130	68	20
South-western ...	3,711							
Total ...	45,438	82,455	57,067	53,560	55,043	60,794	64,536	55,575

The bulk of the output in 1916 was raised from the Cornwall and Mt. Nicholas mines, in the North-eastern Division, which produced 22,839 and 30,624 tons respectively.

3. **Production of Coal in Various Countries.**—The total known coal production of the world in 1912 amounted to about 1100 million tons (exclusive of brown coal or lignite), towards which the Commonwealth contributed 11 million tons, or about 1 per cent. The following table shews the production of the British Empire and the chief foreign countries in units of 1000 tons in 1901 and during each of the years from 1911 to 1915 where the returns are available:—

### COAL PRODUCTION, BRITISH EMPIRE, 1901 and 1911 to 1915.

Year.	United Kingdom.	British India.	Canada.	Australian C'wealth.	New Zealand.	Union of S. Africa.
	1000 tons.	1000 tons.	1000 tons.	1000 tons.	1000 tons.	1000 tons.
1901 ...	219,047	6,636	5,791	6,881	1,228	712
1911 ...	271,892	12,716	11,908	10,550	2,066	6,933
1912 ...	260,416	14,706	15,237	11,730	2,178	7,248
1913 ...	287,430	14,708	13,404	12,418	1,888	7,858
1914 ...	265,665	16,446	12,176	12,445	2,276	7,570
1915 ...	253,206	17,104	11,800	11,415	2,209	7,394

### COAL PRODUCTION, FOREIGN COUNTRIES, 1901 and 1911 to 1915.

Year.	Russian Empire.	Sweden.	German Empire.	Belgium.	France.	Spain.	Japan.	United States.
	1000 tons.	1000 tons.	1000 tons.	1000 tons.	1000 tons.	1000 tons.	1000 tons.	1000 tons.
1901 ...	16,215	268	106,795	21,856	31,136	2,609	8,885	240,789
1911 ...	28,414	355	172,065	22,603	38,602	3,853	17,632	447,854
1912 ...	30,640	360	174,575	22,972	40,648	3,686	19,640	443,188
1913 ...	32,206	364	150,109	22,858	40,192	4,283	21,316	477,202
1914 ...	33,113	367	161,535	...	29,311	3,600	19,372	508,893
1915 ...	...	412	...	...	19,590	3,722	...	458,506

The United States returns include a large proportion of anthracite, the quantity averaging for the last five years about 79 million tons.

Including New Zealand the production from Australasia takes second place amongst the possessions of the British Empire, British India coming first in order.

4. **Export of Coal.**—The exports of coal from the Commonwealth are practically confined to New South Wales.

The total quantity of coal of Australian production (exclusive of bunker coal) exported from the Commonwealth to other countries in 1916 was 646,552 tons, valued at £415,560, of which amount 646,547 tons, valued at £415,549, were exported from New South Wales. Owing to the war the figures are, of course, considerably below those of normal years.

In the following table will be found the quantity and value of the exports from New South Wales, at decennial intervals since 1881 and during the last five years. The figures are given on the authority of the Mines Department of that State, and include both bunker coal and coal exported from New South Wales to other States of the Commonwealth :—

**EXPORTS OF NEW SOUTH WALES COAL, 1881 to 1916.**

Year.	1881.	1891.	1901.	1911.	1912.	1913.	1914.	1915.	1916.
Quantity, 1000 tons ...	1,030	2,514	3,471	5,024	6,053	6,232	5,868	4,668	3,434
Value ... £1000	417	1,307	1,682	2,664	3,233	3,342	3,159	2,485	1,873

The principal oversea countries to which coal was exported from New South Wales during the year 1916-17 are as shewn hereunder. The quantity and value refer strictly to exports, and exclude bunker coal :—

**DESTINATION OF NEW SOUTH WALES OVERSEA EXPORTS OF COAL, 1916-17.**

Country.	Quantity.	Value.	Country.	Quantity.	Value.
	Tons.	£		Tons.	£
Chile ...	81,421	50,068	Java ...	29,394	16,355
Society Islands ...	9,555	6,267	Mauritius ...	1,910	1,355
Straits Settlements	40,993	28,035	Papua ...	4,062	2,536
Fiji ...	47,678	30,913	New Caledonia ...	22,124	16,667
New Zealand ...	320,272	205,889	Falkland Islands	3,223	1,692
Peru ...	15,156	10,879	Gilbert and Ellice Islands ...	3,728	2,309
Hawaii ...	21,096	13,518	Solomon Islands ...	2,075	1,572
United States ...	3,202	2,390	Pleasant Islands	2,239	1,291
India ...	36,653	22,421			

The quantity of bunker coal taken from New South Wales by oversea vessels was about 662,000 tons, valued at £457,000.

The distribution of the total output from New South Wales collieries during the last five years was as follows ; the particulars given of quantity exported include coal shipped as bunker coal :—

**DISTRIBUTION OF TOTAL OUTPUT OF NEW SOUTH WALES COAL, 1911 to 1916.**

Year.	Exports to Australasian Ports.	Exports to other Ports.	Local Consumption.	Total.
	Tons.	Tons.	Tons.	Tons.
1911 ...	2,525,776	2,498,304	3,667,524	8,691,604
1913 ...	3,465,787	2,765,937	4,182,441	10,414,165
1914 ...	2,581,810	3,286,223	4,522,589	10,390,622
1915 ...	2,601,070	2,067,324	4,780,614	9,449,008
1916 ...	2,203,659	1,230,439	4,693,063	8,127,161

The figures quoted above are given on the authority of the New South Wales Mines Department. Owing to the abolition of the record of interstate trade it is impossible to give the quantities forwarded to each of the States of the Commonwealth.

**5. Consumption of Coal in Australia.**—An estimate of the consumption of coal in the Commonwealth may be arrived at by adding the imports to the home production, and deducting the exports (including bunker coal taken by oversea vessels). The following table shews the consumption of coal in Australia, computed in the manner specified, for the last five years :—

## CONSUMPTION OF COAL IN AUSTRALIA, 1912 to 1916.

Year.	Quantity of Coal Consumed.			
	Home Produce.	Produce of the United Kingdom.	Produce of Other Countries.	Total.
	Tons.	Tons.	Tons.	Tons.
1912 ... ..	7,907,000	1,500	14,000	7,922,500
1913 ... ..	8,671,491	872	3,577	8,675,940
1914 ... ..	8,944,867	23,066		8,967,933
1915 ... ..	9,250,592	6,580		9,257,172
1916 ... ..	8,266,215	11,068		8,277,283

The bunker coal taken away in 1916 is estimated at 950,000 tons.

6. **Price of Coal.**—(i.) *New South Wales.* The price of coal in New South Wales has been subject to considerable fluctuation since the date of first production. Up to the end of 1857 the average value of the total output was 11s. 10d. per ton. Next year the value had risen to nearly 15s., declining thereafter until in 1871 the price realised was 7s. From 1872 to 1879 there was a rise in value to 12s. Between 1882 and 1891 the price ranged between 8s. and 10s. From 1891 onwards there was a steady decline until 1898, when the average was 5s. 4d. Henceforward prices rose again until 1902, when 7s. 5d. was the average. A decline then set in until 1905, when the price stood at a little over 6s., followed by a rise of one penny in 1906, and a further rise of eightpence in 1907. In 1908 the average was 7s. 4d., and in 1916, 8s. 3d. per ton. The price of New South Wales coal depends on the district from which it is obtained, the northern (Newcastle) coal always realising a much higher rate than the southern or western product. The average rate in each district during the last five years was as follows:—

## PRICE OF COAL, NEW SOUTH WALES (PER TON), 1912 to 1916.

Year.	Northern District.	Southern District.	Western District.
	s. d.	s. d.	s. d.
1912 ... ..	8 1.15	6 1.06	4 11.98
1913 ... ..	7 9.91	6 1.13	5 1.85
1914 ... ..	7 8.26	6 4.12	5 6.83
1915 ... ..	7 7.24	6 11.23	5 6.08
1916 ... ..	9 0.72	7 1.77	5 6.90

(ii.) *Victoria.* In Victoria the average price of coal up to the 31st December, 1890, was 19s. 3d. per ton. In 1895 the price was still as high as 12s. 2d., but in the following five years there was a serious decline, the value in 1900 being quoted at 9s. 7d. per ton. In 1901, however, there was an astonishing rise, the figure being as high as 14s. 7d. Since that year, however, the price again declined, the average for 1905 being 10s. 2d.; for 1909, 12s.; for 1912, 8s. 9d.; for 1913, 9s. 3d., for 1914 and 1915, 9s. 4d., and for 1916, 10s. 4d. These averages are exclusive of brown coal, the production of which in 1916 was valued at 4s. per ton.

(iii.) *Queensland.* Prices in the principal coal-producing districts during the last five years were as follows:—

## PRICE OF COAL, QUEENSLAND, 1912 to 1916.

District.	Value at Pit's Mouth.				
	1912	1913.	1914.	1915.	1916.
	Per ton. s. d.	Per ton. s. d.	Per ton. s. d.	Per ton. s. d.	Per ton. s. d.
Ipswich ... ..	6 7	7 0½	7 1	7 3	7 11
Darling Downs ... ..	8 6½	8 6	8 9	8 11	9 10
Nundah (Brisbane) ... ..	...	...	5 3	...	...
Wide Bay and Maryborough ... ..	10 10½	10 11	11 4	11 10	12 2
Rockhampton ... ..	10 6	10 4	8 9	8 6	9 6
Clermont ... ..	7 6	7 7	8 5	7 8	7 9
Mount Mulligan (Chillagoe) ... ..	...	...	17 2	12 7	13 4

(iv.) *Western Australia.* The average price of the Collie (Western Australia) coal up to the end of 1901 was 9s. 4d. per ton, the price in 1901 being 11s. 7d. In 1902 the average stood at 12s. 3d., and from that time the price fell steadily until 1906, when it was 7s. 7½d. per ton. In 1907, the average price was 7s. 8½d.; in 1908, 8s. 7½d.; in 1909, 8s. 5½d.; in 1910, 8s. 8d.; in 1911, 8s. 10d.; in 1912, 9s. 2d.; in 1913, 9s. 9d.; in 1914, 9s. 4d.; in 1915, 9s. 8d., and in 1916, 9s. 9d. per ton.

(v.) *Tasmania.* The average price per ton of coal at the pit's mouth in Tasmania was 8s. in 1901. In 1902 it was 8s. 7d.; in 1903, 8s. 9d.; in 1904 and 1905, 9s. 8d.; in 1906, 9s. 9d.; in 1907, 1908, and 1909, 8s.; in 1910, 11s. 9d.; in 1911 and 1912, 9s. 2d.; in 1913, 9s. 3d.; in 1914, 9s. 2d.; in 1915, 9s. 5d., and in 1916, 9s. 9d. per ton.

7. *Price of Coal in other Countries.*—According to a report published by the Board of Trade the average value of coal at the pit's mouth in the five principal coal-producing countries of the world, excluding Russia, for which no information is available, for the five years ended 1912, was as follows:—

## PRICE OF FOREIGN COAL, 1908 to 1912.

Year.	United Kingdom.	Germany.	France.	Belgium.	United States.
	Per ton. s. d.	Per ton. s. d.	Per ton. s. d.	Per ton. s. d.	Per ton. s. d.
1908 ... ..	8 11	10 3½	12 11½	13 1½	5 11½
1909 ... ..	8 0½	10 2½	12 5½	11 8½	5 7½
1910 ... ..	8 2½	9 11½	12 3½	11 10½	5 10½
1911 ... ..	8 1½	9 9½	12 5½	12 0	5 10½
1912 ... ..	9 0½	10 6½	12 8½	13 5½	6 1

The price of coal at the pit's mouth in the principal British possessions is averaged by the same authority as follows:—

## PRICE OF COAL, BRITISH POSSESSIONS, 1908 to 1912.

Year.	British India.	C'wealth of Australia.	New Zealand.	Canada.	Union of Sth. Africa.
	Per ton. s. d.	Per ton. s. d.	Per ton. s. d.	Per ton. s. d.	Per ton. s. d.
1908 ... ..	5 3	7 4½	10 4½	10 8	6 9½
1909 ... ..	4 8½	7 6½	10 10½	10 10½	6 3½
1910 ... ..	4 1	7 6½	11 1½	11 0½	5 10½
1911 ... ..	3 11½	7 5½	10 10½	10 9½	5 8½
1912 ... ..	4 6	7 6½	10 11½	11 5½	5 6½

**8. Employment and Accidents in Coal Mining.**—The number of persons employed in coal mining in each of the States during the year 1916 is shewn below. The table also shows the number of persons killed and injured, with the proportion per 1000 employed, while further columns are added shewing the quantity of coal raised for each person killed and injured, this being a factor which must be reckoned with in any consideration of the degree of risk attending mining operations.

Returns published by the Board of Trade, England, some years ago, gave the total known number of persons engaged in coal mining in the principal countries of the world as 3½ millions, the number in the United Kingdom being 1,068,000; the United States, 723,000; Germany, 628,000; France, 199,000; Russia, 169,000; Belgium, 146,000; Austria, 75,000; India, 133,000; and Japan, 145,000.

The latest available returns shew the rate in the United Kingdom in respect of deaths through accidents in coal mines as 1.17, and for the British Empire 1.48 per 1000 persons employed in coal mines. For France the rate is given as 1.17, for Germany 2.30, and the United States 3.35. For foreign countries generally the rate is stated at 2.48 per 1000.

#### EMPLOYMENT AND ACCIDENTS IN COAL MINING, 1916.

State.	Persons Employed in Coal Mining.	No. of Persons.		Proportion per 1000 Employed.		Tons of Coal Raised for Each Person.	
		Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
New South Wales ...	16,892	13	55	0.77	3.26	625,000	148,000
Victoria ...	1,281	...	18	...	14.00	...	23,300
Queensland ...	2,037	2	30	0.98	14.72	454,000	30,300
Western Australia ...	458	...	86	...	188.00	...	3,500
Tasmania ...	167	...	4	...	24.00	...	13,900
Commonwealth	20,835	15	193	0.72	9.26	654,000	50,800

### § 11. Coke.

**1. Production of Coke.**—Notwithstanding the large deposits of excellent coal in Australia, there was, prior to the war, a fairly considerable amount of coke imported from abroad. In 1916-17, the import amounted to only 307 tons, valued at £938, of which 306 tons, valued at £929, came from the United Kingdom. The table hereunder gives the production in New South Wales during the last five years:—

#### COKE MADE IN NEW SOUTH WALES, 1912 to 1916.

Year.		1912.	1913.	1914.	1915.	1916.
Quantity ...	Tons	241,159	298,612	304,800	417,753	437,587
Value, total ...	£	162,454	208,989	213,069	313,241	387,571
Value per ton ...	...	13s. 5d.	14s. 0d.	13s. 11d.	15s. 0d.	17s. 9d.

During the last five years the industry has made considerable progress. It provides a profitable means of disposal for the small coal which until recent years was allowed to go to waste.

A small quantity of coke is made in Queensland, the quantity returned in 1916 being 17,904 tons, but the bulk of that used in ore reduction is imported, mainly from New South Wales. The following table shews the amount manufactured locally during the last five years:—

**QUEENSLAND.—COKE MANUFACTURED, 1912 to 1916.**

Year.	1912.	1913.	1914.	1915.	1916.
Manufactured locally ... .. tons	38,136	14,942	16,685	17,085	17,904

It is estimated that the total amount of coke consumed for smelting purposes in Queensland during 1916 was 68,500 tons, of which 17,904 tons were produced locally, and 50,544 tons were imported from New South Wales. Oversea imports and exports of coke amounted to a few tons only.

## § 12. Oil Shale and Mineral Oils.

1. **Production of Shale.**—(i.) *New South Wales.* As pointed out by Mr. E. F. Pittman, the name kerosene shale has been rather inaptly applied to a variety of torbanite, cannel, or boghead mineral found at various geological horizons in New South Wales. The mineral does not, as a rule, split in parallel layers, the fracture being rather of a conchoidal type. Pure samples have been found to contain over 89 per cent. of volatile hydro-carbons. The discovery of the mineral in New South Wales dates probably as early as 1802. Its occurrence in the Hartley Vale district was noted by Count Strzelecki in 1845. The mineral has been found at several places in the Upper Coal Measures, and in at least two in the Lower Carboniferous. Production on anything like a large scale commenced in 1868, when about 17,000 tons, valued at £48,000, were raised. The production in 1916 amounted to 17,425 tons, valued at £17,772, as compared with 15,474 tons, valued at £12,890, in 1915. For 1916 the greater portion of the output was won at Wollan and Torbane.

(ii.) *Victoria.* Up to the present no extensive deposit of oil shale has been located in Victoria.

(iii.) *Queensland.* The discovery of natural gas and traces of oil in a deep bore at Roma has fostered the hope that energetic prospecting will lead to the discovery of mineral oil in quantity in this locality. At the end of 1916 the bore had reached a depth of 1450 feet, and the 15½-inch and 12½-inch casings had been successfully cemented in. Boring was continued to a depth of 2875 feet in 1917. Oil-bearing shales are common in many parts of the State. The deposit at Duaringa on the Central railway line shewed a thickness of 6 feet, and contained about 30 gallons of oil to the ton. Inflammable gas and a little oil have been noted in bores put down for coal on the Dawson River. There are shale deposits at Munduran Creek, near Gladstone, Casuarina Island, Redbank Plains in the Ipswich District and Murphy's Creek, near Toowoomba. It is stated that the borings have not so far penetrated to a sufficient depth to properly test the strata.

(iv.) *South Australia.* In this State large areas of bituminous shale, of which the boundaries are only approximately known, occur at Leigh's Creek and Lake Phillipson. Reference to the mineral known as coorongite is made in sub-section 13. Specimens of bitumen have been discovered on Kangaroo Island, and it was supposed that they were the product of a petroleum-bearing area. The Government Geologist states, however, that the island strata are not of such nature as to support this supposition. In regard to the mainland area it is argued by some investigators that the bores so far put down have not been carried to sufficient depth to fairly test the strata. A bonus of £5000 for the discovery of oil has been offered by the South Australian Government. An oil expert engaged by the Government reported adversely on the prospects, but his conclusions have

been challenged by other investigators. A large number of licenses to search for oil have been taken out, and boring operations are being carried on near Kingston and near Robe, the bore at the latter having reached a depth of nearly 4,000 feet.

(v.) *Western Australia.* A deposit of carbonaceous shale of considerable thickness is known to exist at Coolgardie, but the mineral has not yet been raised in any quantity. It is stated that small seepages of oil have been noted near Wonnerup, and indications are reported from the neighbourhood of Albany and Esperance.

(vi.) *Tasmania.* Tasmanite shale has been discovered in the basins of the Mersey, Don, and Minnow Rivers, and the Government Geologist estimates the probable capacity of the beds at 12,000,000 tons. The crude oil content of average quality shale has been estimated at 40 gallons to the ton. In July, 1912, the Railton-Latrobe Shale Oil Company acquired the leases and plant of the Tasmanian Shale and Oil Company, at Latrobe, and it was proposed to develop the deposits on a large scale. The production in 1914 was, however, small, amounting to 75 tons, valued at £75, while no returns from this source were included in the production records for 1915. In 1916, the Company raised 1286 tons of shale, valued at £1286. Large pieces of asphaltum have been discovered in places along the sea coast and in several of the bays of Port Davey Harbour, but it is believed that the material originates in submarine beds. A bore was put down in 1916 by a private company on Bruni Island in search of petroleum, but after sinking about 429 feet, operations ceased for lack of funds.

(vii.) *Northern Territory.* The existence of oil shale has been reported for many years in the Boroloola district, while several oil licenses have been applied for in the Victoria River district. Results so far, however, have been negative, and experts have pronounced unfavourably on the prospects.

(viii.) *Papua.* An expert has reported that the deposits of oil-bearing shale can be worked at a profit, and oil of a satisfactory quality has been obtained from two comparatively shallow bores. It is proposed to test the deeper deposits where indications warrant expectation of a copious supply.

2. **Export of Shale.**—In 1916 New South Wales exported 19 tons of shale, valued at £84.

3. **Shale Oils Bounties.**—The Shale Oils Bounties Act 1910 provided for the payment of bounties on certain goods manufactured in Australia from Australian shale on or after the 1st July, 1910, and before the 1st July, 1913. The total amount made available for bounties under this Act was £50,000.

During the year 1913, the bounties paid in New South Wales amounted to £985 on 118,000 gallons of kerosene, and £809 on 324 tons of refined paraffin wax. As the bounty expired on the 30th June, 1913, the articles mentioned were produced prior to that date.

### § 13. Other Non-Metallic Minerals.

1. **Alunite.**—Probably the most remarkable deposit of alunite in the world occurs at Bullahdelah, in the county of Gloucester, New South Wales, a large proportion of a low bluff ridge in the district being composed of this mineral. The deposits are worked by quarrying, and from 1890 up to the end of 1916, 46,000 tons had been exported, valued at £148,303, the exports for the year 1916 being 325 tons, valued at £1980.

Deposits of a high-class alunite are reported to have been discovered near Sunbury, in Victoria.

In South Australia an extensive deposit of the mineral was located in 1913 at Carrickalinga Head, on the coast north of Normanville, and within a short distance of Adelaide. It is stated that the specimens so far analysed have proved richer in valuable constituents than any similar find yet recorded. The production in 1916 was valued at £670. Another deposit has been located near Warnertown.

2. **Asbestos.**—This substance has been found in various parts of Australia, but up to the present has not been produced in any considerable quantity. In New South Wales the deposits at Jones' Creek, in the Gundagai division, were opened up during the year 1909 and a trial parcel of 15 tons shipped to Germany. Developmental operations were carried on during 1916 by a company at Wood's Reef, in the Barraba division, but there was no record of production. Deposits are found at various places in Queensland, but so far the product is somewhat inferior, the want of tensile strength being the chief drawback. In Western Australia what may prove to be a valuable deposit of the fibrous chrysotile variety has been located at Soanesville, on the Pilbara goldfield, and in 1909 £154 worth of this mineral was raised. In 1899 Tasmania raised 200 tons, valued at £363, but there was no further production until 1916, when a small quantity was raised at Anderson's Creek, near Beaconsfield. Deposits of asbestos of the mountain leather and mountain cork varieties have been discovered at Oodlawirra, while deposits of a good blue variety have been discovered near Hawker and about 23 miles from Eudunda, in South Australia.

3. **Barytes.**—In New South Wales during 1916 about 185 tons of barytes, valued at £278, were obtained in the Mudgee division, and 500 tons, valued at £1250 were raised in the Canowindra district.

4. **Clays and Pigments.**—Valuable deposits of clays and pigments of various sorts are found throughout the Commonwealth. There is a considerable local production of earthenware, bricks, and tiles, but the finer clays have not as yet been extensively used. In New South Wales the production of kaolin in 1916 amounted to 1744 tons, valued at £1336, raised in the Murrumburrah, Molong, Gulgong, and Goulburn divisions, and at Wallendbeen, Boxer's Creek and Home Rule. Fireclay to the amount of 26 tons was raised in the Molong division. Deposits of steatite were worked during 1916 in the Murrumburrah division, the quantity raised during the year amounting to 237 tons. Near Morangaroo 6500 tons of silica were raised by the Silica Fire Brick Company. About 40 tons of ochre, valued at £60, were raised in the Dubbo division. In Victoria 200 tons of kaolin were obtained at Pyalong, and 610 tons at Egerton, the value being given as £1200. In Queensland 8708 tons of fireclay, valued at £1771, were mined during the year 1916 in the Mount Morgan district. On Kangaroo Island, South Australia, where, it is stated, the first pottery mill in the Commonwealth was erected, there are vast deposits of felspar, china, stone, silica, and firebrick clay. There are also very extensive deposits of fireclay near Ardrossan on the Yorke Peninsula. Ochre deposits suitable for making coloured tiles are found near Port Noarlunga. Porcelain and other clays of good quality have been found in Tasmania at Beaconsfield, Sorell, Hagley, etc. Deposits of ochre have been opened up at Dubbo, Wellington, and Marulan, in New South Wales, and ochres and pigments of excellent quality have been produced therefrom. Extensive deposits of iron oxide, giving a return of 80 per cent. ochre, have been discovered near Oodlawirra in South Australia. Oil and water paints of good quality have been made from coloured ochres from Sorell, in Tasmania, and a deposit of ochre of good quality has been located near Mowbray.

5. **Coorongite.**—This peculiar india-rubber like material was first noted many years ago near Salt Creek and in the vicinity of Coorong Inlet, in South Australia, as well as at various localities on Kangaroo Island. It was thought that the substance owed its origin to subterranean oil-bearing strata, but so far the search for petroleum has not been attended with success. (See also § 12., iv.). While the origin of coorongite is still in doubt, it is held by some observers that it is not a petroleum product.

6. **Fuller's Earth.**—Small quantities of this material were produced in 1912, from leases near Narrabri, in New South Wales, the total sold amounting to 50 tons, valued at £287. During 1916 about 110 tons were produced in the Narrabri division.

7. **Graphite.**—Graphite is found in New South Wales near Undercliff Station, in the county of Buller, but the deposit is not sufficiently pure to prove remunerative. A small quantity was raised during 1916 from a site on the Bookookarara in the Wilson's Downfall division. In Victoria the mineral occurs in Ordovician slates in several of the goldfields, but is not worked. In Queensland graphite was raised some years ago by the



Graphite Plumbago Company at Mt. Bopple, near Netherby, on the Maryborough-Gympie line. A deposit has been located in the hundred of Roberts, about 9 miles N.W. of Arno Bay in South Australia. In Western Australia deposits occur at Monglinup Creek, near the Oldfield River, at Northampton, in the Murchison division, on the Donnelly River, and at Kendenup, about 40 miles from Albany. At the last mentioned locality, where the ore is of good grade, a fair amount of developmental work has been done.

**8. Gypsum.**—This mineral is found in various places in the Commonwealth. It occurs in two forms, large crystals, and a floury earth consisting of minute crystals and known as "copi." Both forms are exceedingly pure. It is used largely as a natural manure and to some extent in the manufacture of Portland cement. Gypsum, or hydrous sulphate of lime, when burnt, forms plaster of Paris, but in spite of the abundant supply of suitable material it has not yet been used for this purpose. In Victoria during 1916 there was a production of 1853 tons, valued at £1853, obtained at Boort. Numerous deposits of gypsum are found in Southern Yorke's Peninsula in South Australia. A deposit of gypsum sand containing practically an inexhaustible supply is found on the edge of Lake Austin in Western Australia.

**9. Magnesite.**—Deposits of this mineral have been discovered at several localities in New South Wales. During 1916, 3516 tons, valued at £6583, were raised at Fifield, and 200 tons, valued at £200, at Attunga. The mineral is found at Heathcote in Victoria, where 30 tons, valued at £90, were produced in 1916. There are deposits in the neighbourhood of Rockhampton and Bowen in Queensland, and a deposit of exceptional purity has been located in the vicinity of Tumby Bay in South Australia, about five miles from the township of Tumby. The Broken Hill Co. is working a small deposit near the Beetaloo Waterworks. During 1915, 688 tons of magnesite, valued at £1196, were exported from Western Australia, but the export in 1916 amounted to 12 tons only. A large area of magnesite-bearing country has been located at Bulong, about 20 miles east of Kalgoorlie.

**10. Tripolite, or Diatomaceous Earth.**—Although tripolite has been found at Barraba, Cooma, Wyrallah, and in the Warrumbungle Mountains in New South Wales, the deposits have not been worked commercially on any considerable scale. From the deposits at Bunyan, in the Cooma division, 227 tons of diatomaceous earth, valued at £671, were produced in 1916. A small quantity also was raised in the Lismore division. In Victoria there is a remarkably pure deposit at Lillicur, near Talbot, while beds of the mineral are also met with at other places in the Loddon Valley, near Ballarat, at various places close to Melbourne, at Craigieburn, Lancefield, Portland, Swan Hill, Bacchus Marsh, etc. Fairly extensive deposits of diatomite exist in Queensland, in the Nerang, Beaudesert and Canungra areas, but the various outcrops have as yet been only partially examined. In Tasmania a deposit of diatomaceous earth has been located at Oatlands, but its use for the manufacture of explosives is apparently prejudiced by the circumstance that the diatoms are pulverised and contaminated with clay.

**11. Salt.**—Salt is obtained from salt lakes in the Western and North-western Districts of Victoria, and from salterns in the neighbourhood of Geelong. Large quantities are also obtained from the shallow salt lakes of South Australia, chiefly on Yorke Peninsula. Lake Hart, about 60 square miles in area, situated about 120 miles N.W. from Port Augusta, contains immense supplies of salt of good quality, which at present, however, owing to distance from market, possess no economic value. The salt is simply scraped from the beds of the lakes in summer time and carted to the refinery. It is stated that care must be taken not to leave too thin a crust of salt over the underlying mud, as the resultant "crop" after the winter rains will in that case be smaller than usual. A bore put down near Kingscote, on Kangaroo Island, revealed brine from which salt can be profitably obtained by evaporation. In Western Australia supplies are obtained from dried-up shallow lakes and consumed locally or exported. The chief centres of production were formerly Rottnest Island, near Fremantle, and Middle Island, near Esperance, but the greater part of that now produced is obtained at Port Gregory.

**12. Natural Manures.**—Gypsum has already been referred to. (See 8 *ante*.) South Australia possesses deposits of rock phosphate near Port Clinton and Ardrossan on Yorke Peninsula, at Belvedere near Kapunda, and at Koorunga, and also at many other places which have only been prospected to a small extent. Phosphate of lime has been found in small quantities in the limestone caves of New South Wales. In the Wellington division, from the area situated near the caves, about 1700 tons of phosphate, valued at £6000, were raised during 1916. Although it can hardly be considered a mineral product, mention may be made here of the large accumulations of guano on the Abrolhos Islands, off the coast of Western Australia, in the neighbourhood of Geraldton. The deposits vary in thickness from four to twenty-seven inches. During the years 1876-80 over 36,000 tons were raised; no figures are available shewing the quantity raised in recent years.

## § 14. Gems and Gemstones.

**1. Diamonds.**—Diamonds were first noted in New South Wales by E. J. Hargraves in 1851, and in October of the same year by Geological Surveyor Stutchbury. The Cudgegong field was discovered in 1867, and shortly afterwards the Bingara diamondiferous deposits were located. Stones of small size are also found at Cope's Creek and other places in the Inverell district. The largest diamond won in New South Wales was reported to have been obtained in 1905 at Mt. Werong, near Oberon, and weighed 28 $\frac{5}{8}$  carats. It is difficult to secure accurate returns in connection with the production of precious stones, but the yield of diamonds in 1916 was estimated at 1901 carats, valued at £1375, while the total production to the end of 1916 is given at 188,864 carats, valued at £129,071. The yield in 1916 was contributed by miners working in the vicinity of Copeton, in the Tingha division. Owing to the absence of a market consequent on the war the production in 1916 shewed a great reduction on that for 1913, when 5573 carats, valued at £5141 were won. Small quantities of diamonds are found in Victoria in the gravels of streams running through granite country in the Beechworth district, at Kongbool in the Western District, and near Benalla. The stones are generally small and the production up to date has been trifling. In 1912, eleven small diamonds, valued at £20, were picked out of the sluice boxes of the Great Southern alluvial mine at Rutherglen. A few small diamonds have been found in the Pilbara district in Western Australia. In South Australia diamonds have been found on the Echunga goldfield, the most notable gem being Glover's diamond, which was sold for £70.

**2. Sapphires.**—These gems were discovered in New South Wales in 1851, near Burrandong. They have also been found in small quantities near Inverell, and at a few other localities in the State. There is no record of production. Specimens of sapphire have been found in Victoria, but the stones of commercial size are generally of little value owing to flaws.

In Queensland sapphires are found in the gravel of creek beds, between Withersfield and Anakie on the Rockhampton-Winton railway line. The gems show excellent fire and lustre, but the colour is darker blue than the Oriental sapphire. Hyacinths are occasionally found in association with the gems. The production of sapphires in Queensland in 1916 was valued at £14,733, as compared with £600 in 1915, and over £40,000 in 1913. The gem mining industry practically collapsed on the outbreak of the war, as the German buyers ceased business. With the opening up of markets in London and Paris, however, the sale of the gems recommenced, and as satisfactory prices are being realised, the prospects of the field are encouraging. At present there are three regular buyers on the field, and a few casual buyers operate occasionally. About 270 men are engaged in the search for the gems.

Sapphires are plentifully found in the tin drifts of the Ringarooma and Portland districts in Tasmania, but the stones are, as a rule, small and not worth saving.

**3. Precious Opal.**—This stone was first discovered in New South Wales at Rocky Bridge Creek on the Abercrombie River, in the year 1877, and later a most important discovery was made at White Cliffs in the Wilcannia district, which, until recently, contributed the bulk of the production. In 1916, however, out of a total production valued at £21,273, the yield from the Lightning Ridge field, near Walgett, amounted to £20,610, while the output from the White Cliffs field was only £663. The war has had a very depressing effect on the industry, and operations were practically at a standstill on the White Cliffs field. Some very fine stones are at times obtained, one weighing 5 ozs. and valued at £300 being recovered in 1911. Occasionally, black opals of very fine quality are found, one specimen from the Wallangulla field, weighing  $6\frac{1}{2}$  carats, being sold in 1910 for £102. It is stated that this locality is the only place in the world where the "black" variety of the gem has been found. The total value of opal won in New South Wales since the year 1890 is estimated at £1,413,910.

Small quantities of precious opal are also found in the Beechworth district in Victoria.

In Queensland, the first recorded discovery of the gem dates from about 1875. The opaliferous district stretches over a considerable area of the western interior of the State, from Kynuna and Opalton as far down as Cunnamulla. The yield in 1916 was estimated at £500, and up to the end of that year at £178,195. These figures are, however, merely approximations, as large quantities of opal are disposed of privately to buyers on the fields, no record of which is obtained. At present, the industry suffers from the peculiar disability that in good seasons there is plenty of work available on the pastoral stations, and most men prefer this to the uncertain results obtainable by fossicking, while in dry seasons when constant work is not obtainable, the search for opal is limited by the difficulty in obtaining sufficient water.

Precious opal has been discovered in South Australia in a locality 144 miles N. by E. of Tarcoola. The specimens show similar characteristics to those obtained at White Cliffs in New South Wales. Production in 1916 amounted to £750.

**4. Other Gems.**—Emeralds were found in New South Wales in the year 1890, near the township of Emmaville, the largest specimen found in the district weighing 23 carats in the rough. Altogether 2225 carats were sent to London during that year, some of the gems bringing £4 a carat, but the production has since dwindled. The mine at the Glen in the Emmaville division was re-opened and worked for a short period during 1908, when about 1000 carats of emeralds, valued at about £1650, were obtained. The largest stone in the rough weighed 60 carats. Small emeralds of fine quality have been found at Poona, in Western Australia, and it is stated that prospecting at greater depths would possibly reveal the existence of larger specimens. Amongst other gems found in New South Wales at various times may be mentioned *turquoises*, discovered in 1894, near Bodalla; *topazes*, fine specimens of which have been obtained in the New England district; and *zircons* and *garnets*. Zircons of small size are plentifully found in the vicinity of Table Cape in Tasmania. Topazes are common in the tin drifts of Tasmania, and some fine specimens have been found. Turquoises are also found in thin veins in Victoria. In Gascoigne's mine, situated near the King River, in the parish of Edi, samples of the gem have been found equal in colour to the best Persian stone, and a considerable quantity of turquoises from this mine has been sold in England and Germany. Fine *agates* are found in many places in Victoria, but have not been made use of to any extent. The gems also occur plentifully in the bed of Agate Creek, about four miles south of Forsayth, on the Etheridge field in Queensland. Garnets are found in Western Australia, and beautiful specimens of *crocidolite* have been obtained at Yarra Creek in the Murchison district. *Rubies* have been found at various places in New South Wales and Queensland. *Tourmaline* has been found on Kangaroo Island, in South Australia, and *beryls* near Williamstown, Victoria, and at Poona in Western Australia. Very large but impure beryl crystals have been found at Ben Lomond in Tasmania. Some fine samples of *chiastolite* or luck stone have been found at Mt. Howden, near Bimbourie, in South Australia.

## (C.) GENERAL.

## § 15. Numbers Engaged, Wages Paid, and Accidents in Mining.

1. **Total Employment in Mining.**—The number of persons engaged in the mining industry in each State and in the Commonwealth fluctuates according to the season, the price of industrial metals, the state of the labour markets, and according also to the permanence of new finds, and the development of the established mines. During the year 1916 the number so employed was as follows :—

## NUMBER OF PERSONS ENGAGED IN MINING, 1916.

State.	Number of Persons Engaged in Mining for						Total.
	Gold.	Silver, Lead, and Zinc.	Copper.	Tin.	Coal and Shale.	Other.	
New South Wales ...	2,317	6,461	1,661	1,938	16,892	2,035	31,304
Victoria ...	6,402	...	...	135	1,281	368	8,186
Queensland ...	1,900	62	2,922	1,093	2,037	1,031	9,045
South Australia ...	150	25	2,000	...	...	625	2,800
Western Australia ...	9,563	244	113	235	458	29	10,642
Tasmania ...	176	555	1,719	1,217	167	30	3,864
Northern Territory*	99	86	97	154	...	40	476
Commonwealth ...	20,607	7,433	8,512	4,772	20,835	4,158	66,317

\* Estimated.

The following table shews the number of persons engaged in mining in the Commonwealth during each of the years 1891, 1901, and 1916, together with the proportion of the total population so engaged. The general falling-off since 1901 is due to the stagnation caused by the war, and largely also to the decline in the gold-mining industry :—

## PROPORTION OF PERSONS ENGAGED IN MINING, 1891, 1901 and 1916.

State	1891.		1901.		1916.	
	Miners Employed.	No. per 100,000 of Popu- lation.	Miners Employed.	No. per 100,000 of Popu- lation.	Miners Employed.	No. per 100,000 of Popu- lation.
New South Wales ...	30,604	2,700	36,615	2,685	31,304	1,674
Victoria ...	24,649	2,151	28,670	2,381	8,186	581
Queensland ...	11,627	2,934	13,352	2,664	9,045	1,335
South Australia ...	2,683	834	7,007	1,931	2,800	647
Western Australia ...	1,269	2,496	20,895	11,087	10,642	3,381
Tasmania ...	3,988	2,695	6,923	4,017	3,864	1,950
Northern Territory ...	...	...	...	...	476	...
Commonwealth ...	74,820	2,341	113,462	2,992	66,317	1,351

2. **Wages Paid in Mining.**—Particulars regarding wages paid in the mining industry, which in earlier issues of the Year Book were given in this section, have now been transferred to the section dealing with Labour and Industrial Statistics.

3. **Accidents in Mining, 1916.**—The following table gives particulars of the number of men killed and injured in mining accidents during the year 1916 :—

**NUMBERS KILLED AND INJURED IN MINING ACCIDENTS, 1916.**

Mining for—	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. T.	Cwlth.
<b>KILLED.</b>								
Coal and shale	13	...	2	...	...	...	...	15
Copper ...	5	...	7	4	...	...	...	16
Gold...	1	6	1	...	21	...	...	29
Silver, lead and zinc ...	14	...	...	...	...	...	...	14
Tin ...	1	...	...	...	...	...	...	1
Other minerals	...	...	...	...	...	2	...	2
<b>Total ...</b>	<b>34</b>	<b>6</b>	<b>10</b>	<b>4</b>	<b>21</b>	<b>2</b>	<b>...</b>	<b>77</b>
<b>INJURED.</b>								
Coal and shale	55	18	30	...	86	4	...	193
Copper ...	1	...	30	1	3	34	...	69
Gold...	1	19	23	...	755	...	...	798
Silver, lead and zinc ...	24	...	1	...	...	3	...	28
Tin ...	2	...	1	...	...	...	...	3
Other minerals	3	...	8	...	1	10	...	22
<b>Total ...</b>	<b>86</b>	<b>37</b>	<b>93</b>	<b>1</b>	<b>845</b>	<b>51</b>	<b>...</b>	<b>1,118</b>

**§ 16. State Aid to Mining.**

1. **Introduction.**—The terms and conditions under which the States granted aid in mining were alluded to at some length in previous issues (see Year Books IV. and V.), but owing to considerations of space they have been omitted from this issue. A résumé of what is being done in this direction at the present time is given hereunder.

2. **New South Wales.**—The chief aid given in this State is in the direction of assistance to prospectors. Up to the end of 1916 the total sum expended in this manner amounted to £472,118, of which £10,371 was advanced in 1916. During the year the Government subsidy to the Miners' Accident Relief Fund amounted to £11,295.

3. **Victoria.**—Under the Mining Development and Surplus Revenue Acts the sum of £474,723 was expended from revenue, and £285,566 was provided out of votes during the period 1897 to 1916 as follows :—

	£
Advances to mining companies ...	234,207
Advances to prospectors ...	93,404
Boring for gold and coal ...	241,249
Construction of roads and tracks ...	62,990
Erection of testing plants, batteries, etc. ...	87,970
Miscellaneous, cyanide patents, Schools of Mines, etc.	40,469
<b>Total ...</b>	<b>760,289</b>

The expenditure in 1916 was £47,360, of which £23,044 was advanced to companies; £7,558 was loaned to miners; £213 was spent on constructing roads, etc.; £3,028 on boring for gold, coal, etc., and £8,517 on testing plants and miscellaneous. The Government batteries number 30, several of which are managed by local trusts without expense to the Department so far as cost of working is concerned. The State's contribution to the Coal Miners' Accident Relief Fund amounted to £1,479.

4. **Queensland.**—State assistance to the mining industry in 1916 amounted to £27,751, of which £9,406 consisted of loans in aid of deep sinking; £5,616 grants in aid of prospecting; £1,676 in aid of roads and bridges to gold and mineral fields; £1,307 advance under Mining Machinery Advances Act 1906; £4,987 purchase of boring plant and boring for oil at Roma, and £4,759 purchase of diamond drilling plants.

5. **South Australia.**—Aid is given to the mining industry under the terms of the Mining Act of 1893, and previous measures. Up to the end of 1916 the total amount of subsidy paid was £64,123, of which £9,904 has been repaid, leaving a debit of £54,219. Portion of this amount is represented by machinery that has fallen into the hands of the Government. Repayments are made from profits, but in only two instances have the profits enabled a full return to be made. During 1916 the advances made amounted to £2,312, of which nearly £1,600 represented aid given to prospectors for tin.

6. **Western Australia.**—Under the Mining Development Act of 1902 assistance was granted in 1916 in accordance with the subjoined statement:—Advances in aid of mining work and equipment of mines with machinery, £1,368; advances in aid of erection and equipment of crushing plants, including subsidies on stone crushed for the public, £1,761; advances in aid of boring, £119; providing means of transport, £338. In addition, amounts totalling in all £1,802 were expended from the Mining Development vote on various matters such as water supply, roads, cartage, and subsidies for development below the 100 feet level in small mines. Included in the amount of £1,761 is a sum of £627 paid to owners of plants crushing for the public. The receipts under the Act came to £5,857, of which £3,930 consisted of refunds of advances.

In 1916 there were 32 State batteries in operation. The amount expended thereon up to the end of 1916 was £91,981 from revenue and £272,534 from loan, giving a total of £364,515. During the year receipts amounted to £45,258, and working expenditure to £51,178.

The total value of gold and tin recovered to the end of 1916 at the State plants was £4,736,000, resulting from the treatment of 1,114,460 tons of gold ore and 70,970 tons of tin ore.

7. **Tasmania.**—Under the terms of the Aid to Mining Act 1912 the expenditure for the year 1916 amounted to £244, and the total up to the end of that year to £18,899. The bulk of this was expended in mining, prospecting, and development work undertaken by or under the direction of the Department of Mines. Under the Mining and Public Works Appropriation Act 1913, a sum of £4,078 was expended during 1916, while the outlay to the end of that year was £54,888. Of the latter sum, £21,273 consisted of advances on the security of ore produced from any mine in the State, and £11,209 was absorbed by expenses in connection with the State Argent Flat mine, Zeehan. Under the Public Works Appropriation Act 1913, a sum of £289 was expended in 1916, the total expenditure under this Act being £7,278. Further, a sum of £8,979 was expended under the Mining Appropriation Act of 1905 in respect to the State mine at Zeehan. The practice of granting £5 per month to an approved prospector has resulted in the efficient investigation of mining possibilities over a wide area.

8. **Northern Territory.**—During the year 1916-17 the Government aid to mining amounted to £14,596, distributed as follows:—For shaft sinking, £6,174; prospecting, £7,170; purchase of machinery, £900; diamond drilling, £352. Since the passing of the Encouragement of Mining Ordinance in 1913, a sum of £18,566 has been paid in subsidies. There are Government batteries at Maranboy and Hayes Creek.

## § 17. Commonwealth Government Control of Industrial Metals.

1. **General.**—Prior to the declaration of war by Great Britain, practically the whole of the base metal production in Australia had been sold to representatives of the German metal organisation. The outbreak of hostilities threw the industry into chaos, and steps were immediately taken to cancel existing agreements, and to establish the industry on a sound and permanent foundation, consistent with British interests.

The following legislative and administrative acts may be cited:—

- (i.) Cancellation of all mineral and metal contracts with enemy companies and firms.
- (ii.) Dissolution of the Lead Convention controlled by Germans which determined the price to consumer and producer of all Australian lead.
- (iii.) Dissolution of the Zinc Combine—a purely German combine which controlled the world's spelter market, determining price, output, and manipulating the market as it pleased in the interests of Germany.
- (iv.) Elimination of the German interests in the copper industry of Australia.
- (v.) Elimination of all enemy agencies controlling tin, molybdenite, wolfram, and other metals.

The policy of the Government is to have all metallic ores, as far as possible, treated within the Commonwealth, so that the resultant metals can be marketed in a refined state.

2. **Lead.**—Steps taken by the Commonwealth Government resulted in the formation and extension of the Broken Hill Associated Smelters Proprietary Limited, which has taken over the Broken Hill Proprietary Works at Port Pirie, South Australia. The new company is a co-operative institution for the smelting of silver-lead ores and concentrates, and the refining of the silver-lead bullion. It has one of the largest silver-lead smelting works in the world, with a capacity for an output of 160,000 tons of pig lead, and 5,000,000 to 6,000,000 ounces of silver per annum.

The Sulphide Corporation Limited continues to improve and enlarge its lead smelting works at Cockle Creek, near Newcastle, New South Wales. The refinery plant is now in operation and the output of some 60,000 tons of lead per annum with silver and gold made available locally. The works cater for all the smaller mines of New South Wales, Victoria, Queensland and Tasmania, in addition to two of the Broken Hill mines.

The Fremantle Smelters, Fremantle, Western Australia, are owned by the Fremantle Trading Company Limited. The plant running at its full capacity is capable of an annual output of 15,000 tons of pig lead or silver-lead bullion from usual grade lead concentrates. The company is at present smelting only the Northampton lead ores, which contain little or no silver, and the present output is at the rate of 5,000 tons soft pig lead per annum. The plant in operation has a capacity for an annual output of about 7,000 tons of pig lead.

3. **Zinc.** A new company, the Zinc Producers' Association Proprietary Limited, has been formed to control and dispose of the output of zinc concentrates produced within the Commonwealth. All the principal zinc-producing companies are members, and the Association is founded on a co-operative basis. One of the fundamental principles is "equality of treatment" to all members. The Commonwealth Government is represented on the Board, thus safeguarding the interests of the general community.

The output of zinc concentrates within the Commonwealth for the twelve months ended 31st December, 1917, was 294,800 tons, and arrangements have been made whereby 40 per cent. of the normal output may be reserved for local treatment. The Electrolytic Zinc Company of Australasia Proprietary Limited has been formed, and the first unit of the refinery is now in operation. A contract for electrical power has been arranged with the Tasmanian Government, and technical experts have been engaged to install the plant and work the process. In order to facilitate the early establishment of Australian zinc industries, the Imperial Government has undertaken to advance £500,000, if required, to finance Australian zinc works, interest on such advances to be at the same rate as is paid by the Imperial Government. The Mount Lyell Mining and Railway Company Limited, having acquired mines on the West Coast of Tasmania containing large bodies of complex sulphide ores, has formed a new company (The Mount Read and Rosebery Mines Limited) to take over these properties. The new company promises to be a substantial producer of electrolytic zinc. The enlargement of the Broken Hill Associated Smelters' zinc distillery at Port Pirie is also receiving attention.

4. **Copper.**—A new company, the Copper Producers' Association Proprietary Limited, has been formed on the same lines as the Zinc Producers' Association, to control and dispose of the output of copper produced within the Commonwealth. All the principal copper producing companies are members of the Association. As in the case of the Zinc Producers' Association, the Commonwealth Government is represented on the Board of Directors.

The Australian production of copper amounts to approximately 40,000 tons per annum. The whole of this copper is refined in Australia. The Copper Producers' Association has accepted an offer from the British Ministry of Munitions for the Australian output of copper to the 30th June, 1918, excepting copper required for local consumption and copper sold under existing contracts. The amount involved under the contract will be approximately £2,150,000. The price to be paid for electrolytic and/or Wallaroo copper will be £108 per ton f.o.b. Sydney, and for other brands £106 per ton f.o.b. Sydney. If the production of other brands exceeds one-fourth of the total tonnage, the Munitions Department require an abatement in the price of £4 per ton, thus reducing the price for the excess to £104 per ton. The maximum quantity that may be delivered under the contract is 20,000 tons and the minimum 15,000 tons. If the maximum should be exceeded, the surplus will be taken by the British Ministry of Munitions at a price to be negotiated. If, however, the minimum is not reached, the Ministry of Munitions may claim delivery of the deficiency later at the contract price, but has no right to action for breach of contract.

The companies which are members of the Association are represented on the Board of Directors by the following members:—

Messrs. Bowes Kelly, Chairman, J. M. Niall, Vice-Chairman, Hon. W. L. Baillieu, Messrs. H. R. Denison, W. H. Fletcher, General F. G. Hughes, Mr. Percy Pigott, Sir J. Lancelot Stirling, Mr. J. L. Wharton. Sir J. M. Higgins, is the Government representative on the Board.

The Executive Committee appointed by the Board to carry on the general business of the Association consists of Messrs. Bowes Kelly, J. M. Niall, J. L. Wharton, Hon. W. L. Baillieu, Sir J. Lancelot Stirling, and Sir J. M. Higgins (Government representative).

The "Metal Manufacturers Limited" which was formed for the production of copper wire, tubes, sheets, etc., will, when the works are completed, be in a position to meet all Australian requirements.



5. **Tin.**—Encouragement is also given to the refining of tin ore and tin concentrates within the Commonwealth. The principal tin smelters are the Mount Bischoff Company, Tasmania, the Sydney Smelting Company (Pymont Works), New South Wales, and the Irvinebank Company, Queensland.

6. **Molybdenite, Wolfram and Scheelite.**—The Commonwealth Government entered into an agreement with the Imperial Government for the acquisition of all wolfram, molybdenite, etc., produced in Australia. Under this agreement practically the whole of these minerals produced in Australia are being acquired for the Imperial Government, the prices fixed from the 1st January, 1918, being—

Wolfram and Scheelite	... 65 % $\text{WO}_3$	52s. 6d. per unit at producing centres.
Molybdenite	... 85 % $\text{MoS}_2$	100s. per unit at producing centres.

7. **Formation of Metal Exchange.**—Another action of the Government towards the elimination of German influence was the creation of an Australian Metal Exchange with offices at Melbourne and Sydney. No metals or minerals can be exported from Australia unless first registered with the Exchange by an active member, and, during the war, with the consent of the Minister for Trade and Customs. The members of the Exchange must be natural-born British subjects, and the Attorney-General has the right of veto with regard to membership during the war and twelve months after.

## SECTION XIII. MANUFACTURING INDUSTRIES.

### § 1. General.

1. **Industrial Progress.**—The statistics of manufactures in the Commonwealth shew that many industries have now been permanently established on a secure basis, and also indicate a consistent progress both in regard to the extension of existing industries and the establishment of new ones. As will be seen from the following pages, this growth has been particularly rapid since the abolition of inter-colonial tariffs consequent upon the creation of the Commonwealth of Australia in 1901, the throwing open of the whole of the Australian markets to the industrial products of each State having facilitated the internal distribution of the products of Australian industry.

(i.) *The Gold Discoveries, 1851.* Prior to the gold discoveries (1851) there was little development in the manufacturing industries of Australia. Reference to that period will be found in earlier issues of the Year Book (see No. 6, page 524).

(ii.) *Later Progress.* Soon after the discovery of gold, the construction of the first railways (1854) and the re-establishment of regular steamship communication with Europe (1856) helped to encourage the nascent industrial activity. The Colonies of New South Wales and Victoria, which had recently (1855) received the benefits of responsible government, soon turned their attention to the settlement of an agricultural population on the land. The Acts which were passed had a beneficial effect on the workers, giving them opportunities for employment not previously open to them, and fostering the manufacturing industries by increasing the measure of primary production. During the following years the various manufacturing industries prospered. The statistics of the States are not sufficiently complete or uniform to enable a statement of the progress of these industries to be given. The following table, however, shewing, so far as returns are available, the number of factories and the number of employees in each State at decennial periods from 1861 to 1911, and for each of the five years 1912 to 1916, will serve to indicate generally the progress which has been made. Consequent on Victoria and South Australia having fallen into line with New South Wales in furnishing manufacturing returns for the commercial year ended 30th June, it has been found necessary in the present issue to repeat the 1915 year's figures in the case of Victorian and South Australian manufactures, the New South Wales returns being for year ended 30th June, 1916, and those for the other three States for the calendar year 1916:—

**NUMBER OF FACTORIES AND EMPLOYEES IN EACH STATE, 1861 to 1916.**

Year.	N.S.W.	Victoria.	Queensland.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
<b>NUMBER OF FACTORIES.</b>							
1861	601	531	...	...	...	...	...
1871	1,813	1,740	...	...	...	...	...
1881	2,961	2,488	571†	823†	...	...	...
1891	3,056	3,141	1,328†	996†	175	...	...
1901	3,367	3,249	2,110†	1,335†	662	420*	11,143
1911	5,039	5,126	1,657	1,314	710	609	14,455
1912	5,162	5,263	1,790	1,341	711	611	14,878
1913	5,346	5,613	1,838	1,353	763	623	15,536
1914	5,269	5,650	1,796	1,323	787	603	15,428
1915	5,269	5,413	1,775	1,266	780	589	15,092
1916†	5,210	5,413	1,782	1,266	771	568	15,010

\* For 1902. † Not on same basis as other States. ‡ New South Wales for year ended 30th June, 1916; Victoria and South Australia, calendar year 1915; Queensland, Western Australia, and Tasmania calendar year 1916. See last paragraph above. || For year ended 30th June, 1915.

NOTE.—In this and all subsequent tables, except where specially mentioned, "Number of Employees" includes working proprietors.

NUMBER OF FACTORIES AND EMPLOYEES IN EACH STATE,  
1861 TO 1916—(Continued).

Year.	N.S.W.	Victoria.	Queensland.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
NUMBER OF EMPLOYEES.							
1861	...	4,395	...	...	...	...	...
1871	13,583	19,569	...	5,629†	...	...	...
1881	31,191	43,209	...	10,995†	...	...	...
1891	50,879	53,525	...	14,099†	...	...	...
1901	66,135	66,529	26,172†	19,283†	12,198	7,466*	197,783
1911	108,624	111,948	37,156	27,885	15,799	10,298	311,710
1912	115,561	116,108	40,948	28,500	16,382	9,957	327,456
1913	120,400	118,744	42,363	28,511	17,299	9,784	337,101
1914	116,611	118,399	43,282	26,874	17,640	8,922	331,728
1915	116,611	113,834	42,079	25,496	14,631	8,420	321,071
1916†	116,401	113,834	39,983	25,496	12,676	8,362	316,752

For notes see previous page.

2. **Defects in Industrial Statistics.**—A complete statistical account of the growth of the manufacturing industries in Australia unfortunately cannot be given for any lengthy period, owing to the fact that the necessary statistics have not been collected in past years by the several States upon a definite and identical basis. Even in respect of the definition of a "factory" or (so far as they might be included in related returns) the statistics of persons employed therein, there was formerly no common agreement. The relatively minor place that manufacturing industry held in relation to the total activity of Australia was, perhaps, responsible for the fact that the necessity for uniform method was not earlier recognised.

In 1896 it was agreed, as between Victoria and New South Wales, to adopt a common definition of the term "factory," viz., "any factory, workshop, or mill where four or more persons are employed or power is used." This agreement was adopted for the States generally at the Conference of State Statisticians in 1902, when it was decided, however, that the term "factory" should include also "all establishments, whether making for the trade, wholesale or retail, or for export." It was further agreed that industries should be arranged, as far as possible, under a uniform classification. As a result of the conference of 1902 a higher degree of uniformity in the collection and presentation of industrial statistics was attained in the several States, so that returns upon which anything like a proper comparative study of the development and progress of various manufacturing industries in the Commonwealth may be based, date back only as far as the year 1903, when the resolution of the conference first came to be put into force. All the States did not, however, fall completely into line, and, as may be seen in the succeeding parts of this section, the comparisons afforded by the returns for the years 1903 to 1906 inclusive, are in some cases subject to various limitations. At the Conference of Statisticians held in Melbourne in 1906 special consideration was given to the methods to be adopted for the collection of statistical information regarding primary and secondary production and industry. A definite classification of industries was adopted, and a set of forms for the collection and compilation of industrial statistics on a definite and uniform basis in each State was agreed upon. The States have not, even yet, fallen entirely into line in collecting and classifying the returns. The particulars for the past eight years are, however, in more complete co-ordination than formerly, and it is now possible to give particulars for the several States in greater detail and with greater uniformity throughout.

3. **Classification of Manufacturing Industries.**—Under the classification adopted at the Conference of Statisticians held in 1906, factories were placed under nineteen different categories, according to the nature of the industry carried on therein, most of the categories being further subdivided. Where two or more industries are carried on by one proprietor in one building, each industry is, when possible, treated as a separate establishment. The statement given hereafter shews the classification which has been adopted; it

must be understood, however, that this classification does not pretend to be exhaustive, but merely serves as a guide for the collection and presentation of statistics in the several States on a definite and uniform basis :—

### CLASSIFICATION OF MANUFACTURING INDUSTRIES.

<p><b>CLASS I.—TREATING RAW MATERIALS, ETC.</b> Boiling-down, Tallow Refining, etc. Tanneries Woolscouring &amp; Fellmongering Chaff-cutting, etc.</p> <p><b>CLASS II.—OILS AND FAT, ETC.</b> Oil and Grease Soap and Candles</p> <p><b>CLASS III.—STONE, CLAY, GLASS, ETC.</b> Bricks and Tiles Glass (including Bottles) Glass (Ornamental) Lime, Plaster, Cement and Asphalt Marble, Slate, etc. Modelling, etc. Pottery and Earthenware</p> <p><b>CLASS IV.—WORKING IN WOOD.</b> Boxes and Cases Cooperage Joinery Saw Mills Wood-turning, etc.</p> <p><b>CLASS V.—METAL WORKS, MACHINERY, ETC.</b> Agricultural Implements Brass and Copper Cutlery Engineering Galvanised Iron-working Ironworks and Foundries Lead Mills Railway Carriages Railway and Tramway Workshops Smelting Stoves and Ovens Tinsmithing Wireworking Other Metal Works</p> <p><b>CLASS VI.—FOOD AND DRINK, ETC.</b> Bacon Curing Butter Factories Butterine and Margarine Cheese Factories Condensed Milk Meat and Fish Preserving Biscuits Confectionery</p>	<p>Corn-flour, Oatmeal, etc. Flour Mills Jam and Fruit Canning Pickles, Sauces and Vinegar Sugar Mills Sugar Refining Aerated Waters, Cordials, etc. Breweries Condiments, Coffee, Spices, etc. Distilleries Ice and Refrigerating Malting Tobacco, Cigars, etc.</p> <p><b>CLASS VII.—CLOTHING AND TEXTILE FABRICS.</b> Woollen and Tweed Mills Boots and Shoes Slop Clothing Clothing (Tailoring) Dressmaking and Millinery— Makers' material Customers' material Dyeworks and Cleaning Furriers Hats and Caps Waterproof and Oilskin Shirts, Ties, and Scarfs Rope and Cordage Tents and Tarpaulins</p> <p><b>CLASS VIII.—BOOKS, PAPER, PRINTING, ETC.</b> Electrotyping &amp; Stereotyping Paper-making, Paper Boxes, Bags, etc. Photo-engraving Printing and Binding</p> <p><b>CLASS IX.—MUSICAL INSTRUMENTS, ETC.</b> Musical Instruments and Sewing Machines</p> <p><b>CLASS X.—ARMS &amp; EXPLOSIVES</b> Arms and Explosives</p> <p><b>CLASS XI.—VEHICLES, SADDLERY, HARNESS, ETC.</b> Coach and Wagon Building Cycles Perambulators Saddlery, Harness, etc. Spokes, etc.</p>	<p><b>CLASS XII.—SHIP AND BOAT BUILDING AND REPAIRING.</b> Docks and Slips Sailmaking Ship and Boat Building and Repairing</p> <p><b>CLASS XIII.—FURNITURE, BEDDING, ETC.</b> Bedding, Flock, &amp; Upholstery Billiard Tables Furniture and Cabinet Making Picture Frames Window Blinds</p> <p><b>CLASS XIV.—DRUGS AND CHEMICALS, ETC.</b> Chemicals, Drugs, and Medicines Fertilisers Paints, Varnishes, and By-products</p> <p><b>CLASS XV.—SURGICAL AND OTHER SCIENTIFIC INSTRUMENTS.</b> Surgical, Optical, and other Scientific Instruments</p> <p><b>CLASS XVI.—TIMEPIECES, JEWELLERY, &amp; PLATED WARE.</b> Electro-plating Manufacturing Jewellery, etc.</p> <p><b>CLASS XVII.—HEAT, LIGHT AND POWER.</b> Coke Works Electric Apparatus Electric Light and Power Gas Works and Kerosene Lamps and Fittings, etc. Hydraulic Power</p> <p><b>CLASS XVIII.—LEATHERWARE (N.E.T.)</b> Leather Belting, Fancy Leather, Portmanteaux &amp; Bags</p> <p><b>CLASS XIX.—MINOR WARES.</b> Basket and Wickerware, Matting, etc. Brooms and Brushware Rubber Goods Toys Umbrellas Other Industries</p>
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## § 2. Number of Factories.

1. **General.**—In stating the number of factories in the States of the Commonwealth, it is to be remembered that in the collection of statistics for years prior to 1907 the same basis has not been adopted in each State. In Queensland, for example, prior to 1906, the statistics included all establishments where two or more hands were employed, except Government railway workshops, which were not included till 1907. The difference in other respects is not material.

In the following table, shewing the total number of factories in the Commonwealth during the years 1903 and 1911 to 1916, it should be noted that not only are the results affected by differences of classification prior to 1907, but also that the alteration in

the number of factories from year to year does not unequivocally indicate a change in the position of the industry, since amalgamations may account for part of the reduction of the numbers. (See § 3, 5.)

### FACTORIES OF THE COMMONWEALTH, 1903 and 1911 to 1916.

Year.	N.S.W.	Victoria.	Queensland.	South Aust.	West. Aust.	Tasmania.	C'wealth.
1903 ...	3,476	4,151	2,001*	906*†	586	431	11,551
1911 ...	5,039	5,126	1,657	1,314	710	609	14,455
1912 ...	5,162	5,263	1,790	1,341	711	611	14,878
1913 ...	5,346	5,613	1,838	1,353	763	623	15,536
1914 ...	5,269	5,650	1,796	1,323	787	603	15,428
1915 ...	5,269	5,413	1,775	1,266	780	589	15,092
1916	5,210	5,413	1,782	1,266	771	568	15,010

\* Not on same basis as other States. † 1904 results, those for 1903 not available.

† For year ended 30th June, 1915. || See note † first table, this section.

(i.) *Classification of Factories in Commonwealth, 1911 to 1916.* The following table shews the total number of factories in the Commonwealth at the end of each year from 1911 to 1916, classified on the basis indicated in § 1, 3 hereof:—

### CLASSIFICATION OF FACTORIES IN THE COMMONWEALTH, 1911 to 1916.

Class of Industry.	1911.	1912.	1913.	1914.	1915.	1916.
	No.	No.	No.	No.	No.	No.
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ...	857	871	907	870	839	817
II. Treating oils and fats, animal, vegetable, etc. ...	105	102	100	101	99	96
III. Processes in stone, clay, glass, etc. ...	719	709	732	706	654	626
IV. Working in wood ...	1,625	1,752	1,812	1,764	1,702	1,661
V. Metal works, machinery, etc. ...	1,697	1,779	1,814	1,824	1,814	1,832
VI. Connected with food and drink, etc. ...	2,310	2,331	2,366	2,333	2,328	2,372
VII. Clothing and textile fabrics, etc. ...	3,093	3,115	3,266	3,254	3,117	3,085
VIII. Books, paper, printing and engraving ...	1,144	1,158	1,206	1,229	1,225	1,225
IX. Musical instruments, etc. ...	19	21	21	19	19	20
X. Arms and explosives ...	14	16	20	19	20	21
XI. Vehicles and fittings, saddlery & harness, etc. ...	1,208	1,249	1,396	1,365	1,337	1,334
XII. Ship and boat building and repairing ...	87	97	96	93	88	72
XIII. Furniture, bedding, and upholstery ...	613	670	719	703	693	697
XIV. Drugs, chemicals, and by-products ...	189	202	206	213	206	207
XV. Surgical and other scientific instruments ...	41	44	48	52	51	51
XVI. Jewellery, timepieces, and platedware ...	169	177	190	200	199	195
XVII. Heat, light, and power ...	351	372	420	454	474	466
XVIII. Leatherware, n.e.i. ...	62	66	67	65	67	69
XIX. Minor wares, n.e.i. ...	152	147	150	164	160	164
<b>Total ...</b>	<b>14,455</b>	<b>14,878</b>	<b>15,536</b>	<b>15,428</b>	<b>15,092</b>	<b>15,010</b>

For the purpose of the returns in the above table the definition of a factory adopted at the Conference of Statisticians in 1902 (see § 1, 2 hereof) is used, viz., "Any factory, workshop or mill where four or more persons are employed or power is used." The total increase in the number of factories according to this table from 1911 to 1916 was 555, or an average of 111 a year. The state of the manufacturing industries throughout Australia cannot, however, be gauged from a mere enumeration of the number of factories. Some of the factories concerned were practically in their infancy, employing but few hands, while others were developed on a large scale. Also, as pointed out previously, amalgamations may in some instances account for a reduction in the numbers.

(ii.) *Classification of Factories in each State, 1916.* The following table shews the number of factories in each State of the Commonwealth, classified according to the nature of the industry. (See classification given in § 1, 3 hereof):—

## CLASSIFICATION OF FACTORIES IN EACH STATE, 1916.

Class of Industry.	N.S.W. 1915-16.	Vic. 1915.	Q'land. 1916.	S. Aus. 1915.	W. Aus. 1916.	Tas. 1916.	Cwlth. No.
I. Treating raw material, product of agricul. and pastoral pursuits, etc.	264	322	43	105	39	44	817
II. Treating oils and fats, animal, vegetable, etc.	40	25	15	10	4	2	96
III. Processes in stone, clay, glass, etc.	269	189	41	71	36	20	626
IV. Working in wood	649	410	301	94	66	141	1,661
V. Metal works, machinery, etc.	584	731	218	177	81	41	1,832
VI. Connected with food and drink, etc.	767	631	473	248	141	112	2,373
VII. Clothing and textile fabrics, etc.	985	1,415	247	226	141	71	3,085
VIII. Books, paper, printing & engraving	468	443	143	85	73	23	1,225
IX. Musical instruments, etc.	14	5	...	1	...	...	20
X. Arms and explosives	8	12	...	1	...	...	21
XI. Vehicles and fittings, saddlery and harness, etc.	404	529	144	133	73	51	1,334
XII. Ship and boat building & repairing	30	12	11	8	5	6	72
XIII. Furniture, bedding, and upholstery	246	265	78	48	40	20	697
XIV. Drugs, chemicals, and by-products	94	79	3	11	13	7	207
XV. Surgical and other scientific instruments	14	23	7	2	5	...	51
XVI. Jewellery, timepieces, & platedware	56	94	16	14	8	7	195
XVII. Heat, light, and power	229	142	29	17	32	17	466
XVIII. Leatherware, n.e.i.	26	33	4	3	3	...	69
XIX. Minor wares, n.e.i.	73	53	9	12	11	6	164
Total	5,210	5,413	1,782	1,266	771	568	15,010

2. Use of Mechanical Power.—The principal motive power is steam, but the chief towns possess electric power stations owned either by the Government, or by public bodies or private companies. From these many factories find it convenient to derive their motive power.

The following table shews the number of factories in which machinery was worked by steam, gas, oil, or electricity, and the horse-power of engines or motors used, in each State and in the Commonwealth:—

## UTILISATION OF MECHANICAL POWER IN FACTORIES IN EACH STATE, 1916.

State.	Number of Establishments.			Actual Horse-power of Engines Used.				
	Using Machinery worked by Steam, Gas, Oil, or Electricity	Others.	Total.	Steam.	Gas.	Oil.	Electricity.	Total.
	No.	No.	No.	H.P.	H.P.	H.P.	H.P.	H.P.
N.S.W., 1915-16	4,077	1,133	5,210	177,162	13,926	1,689	58,075	250,852
Vic., 1915	4,030	1,383	5,413	71,223	17,935	2,272	26,385	117,815
Q'land, 1916	1,382	400	1,782	42,529	9,799	1,529	11,960	65,817
S. Aust., 1915	971	295	1,266	26,698	6,888	1,859	6,485	41,930
W. Aust., 1916	616	155	771	26,476	5,094	977	5,605	38,152
Tas., 1916...	474	94	568	5,069	279	215	9,639	15,202
Commonwealth	11,550	3,460	15,010	349,157	53,921	8,541	118,149	529,768

A comparison of the above table with that immediately preceding will explain the preponderance of horse-power employed in the New South Wales factories, this State possessing by far the largest number of industries demanding a considerable amount of power; Victoria, on the other hand, has the largest number of establishments, such as those connected with clothing and textile fabrics, wherein much less mechanical power is utilised.

The number of establishments in the Commonwealth using machinery worked by steam, gas, oil, or electricity was 11,550, or 76.95 per cent. of the total; 3460 establishments, representing 23.05 per cent., used no mechanical power. The total actual horse-power in use was 529,768, of which engines in which the motive power was steam formed 65.91 per cent.; gas, 10.18 per cent.; oil, 1.61 per cent.; and electricity, 22.30 per cent.

The following table shews the horse-power of engines used in connection with factories in the Commonwealth during each of the last six years :—

**UTILISATION OF MECHANICAL POWER IN FACTORIES IN COMMONWEALTH,  
1911 to 1916.**

Year.	Number of Establishments.			Actual Horse-power of Engines used.				
	Using Machinery worked by Steam, Gas, Oil, or Electricity.	Others.	Total.	Steam.	Gas.	Oil.	Electricity.	Total.
	No.	No.	No.	H.P.	H.P.	H.P.	H.P.	H.P.
1911 ...	9,972	4,483	14,455	255,061	35,589	6,024	46,576	343,550
1912 ...	10,556	4,320	14,876	284,228	43,905	6,829	56,797	391,759
1913 ...	11,239	4,297	15,536	313,085	48,677	8,143	72,250	442,154
1914 ...	11,396	4,032	15,428	336,766	50,976	8,542	95,253	491,537
1915 ...	11,438	3,654	15,092	333,494	54,994	8,558	107,788	504,834
1916 ...	11,560	3,460	15,010	349,157	53,921	8,541	118,149	529,768

During the last five years the number of establishments using mechanical power has increased nearly 16 per cent., the actual horse-power of engines used increasing over 54 per cent. during the same period.

### § 3. Numbers Employed in Australian Factories.

1. **Total Number Employed.**—Each person employed in and about a factory, in whatever capacity, is now included as a factory employee, consequently every proprietor who works in his business is counted as an employee, and all "outworkers" (see paragraph 6 hereinafter) are also included. The individuals embraced may be classed under the following heads, viz. :—(i.) Working proprietors; (ii.) managers and overseers; (iii.) accountants and clerks; (iv.) enginedrivers and firemen; (v.) skilled and unskilled workers in the factories, mills, or workshops; (vi.) carters and messengers; and (vii.) others.

(i.) **Average Numbers Employed, 1911 to 1916.** The following table shews, for each year from 1911 to 1916 inclusive, (a) the average numbers of persons (including both sexes and all ages) employed in manufacturing industries in each State; (b) the percentage of the numbers employed in each State on the total numbers employed in the Commonwealth; and (c) the numbers employed per ten thousand of the mean population in each State and the Commonwealth :—

**AVERAGE NUMBER OF PERSONS EMPLOYED IN MANUFACTURING INDUSTRIES,  
1911 to 1916.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
AVERAGE NUMBER.							
1911 ...	108,624	111,948	37,156	27,885	15,799	10,298	311,710
1912 ...	115,561	116,108	40,948	28,500	16,382	9,957	327,456
1913 ...	120,400	118,744	42,363	28,511	17,299	9,784	337,101
1914 ...	116,611*	118,399	43,282	26,874	17,640	8,922	331,728
1915 ...	116,611*	113,834	42,079	25,496	14,631	8,420	321,071
1916†	116,401	113,834	39,983	25,496	12,676	8,362	316,752

**PERCENTAGE ON COMMONWEALTH TOTAL.**

	%	%	%	%	%	%	%
1911 ...	34.85	35.91	11.92	8.95	5.07	3.30	100.00
1912 ...	35.29	35.46	12.51	8.70	5.00	3.04	100.00
1913 ...	35.72	35.22	12.57	8.46	5.13	2.90	100.00
1914 ...	35.15	35.69	13.05	8.10	5.32	2.69	100.00
1915 ...	36.32	35.45	13.11	7.94	4.56	2.62	100.00
1916†	36.75	35.94	12.62	8.05	4.00	2.64	100.00

\* For year ended 30th June, 1915.

† See footnote to table on page 481.

## AVERAGE NUMBER OF PERSONS EMPLOYED IN MANUFACTURING INDUSTRIES, 1911 TO 1916—Continued.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
PER 10,000 OF MEAN POPULATION.							
1911 ...	654	848	605	679	551	541	694
1912 ...	665	856	648	676	543	519	705
1913 ...	665	852	649	658	551	499	702
1914 ...	626*	832	641	611	545	450	674
1915 ...	626*	798	612	580	454	422	650
1916† ...	622	798	590	580	403	422	642

\* Year ended 30th June, 1915.

† See note † first table this section.

(ii.) *Rates of Increase, 1911 to 1916.* From the preceding table it may be seen that during the last three years there has been a general decrease in the average number of persons employed in manufacturing industries during the period referred to. The following table shews the percentage of increase or decrease on the average number for the preceding year from 1912 to 1916. The figures for the past three years are somewhat vitiated by the change in dates of collecting the statistics in New South Wales, Victoria, and South Australia :—

## PERCENTAGE OF INCREASE IN AVERAGE NUMBER EMPLOYED, 1911 to 1916.

Years.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	%	%	%	%	%	%	%
1911-12 ...	6.35	3.72	10.20	2.12	3.69	—3.31	5.03
1912-13 ...	4.19	2.27	3.46	0.04	5.60	—1.74	2.95
1913-14 ...	—3.27*	—0.29	2.17	—5.74	1.97	—8.81	—1.64
1914-15 ...	—3.27*	—3.86	—2.78	—5.13	—17.06	—5.63	—3.21
1915-16† ...	—0.10	—3.86	—4.98	—5.13	—13.64	—0.69	—1.35

Note. — signifies a decrease. \* Eighteen months ended 30th June, 1915. † See note † first table this section.

**2. Classification of Numbers Employed in Factories in the Commonwealth, 1911 to 1916.**—The following table gives a classification of the average numbers of persons employed in factories of different descriptions in the Commonwealth during the years 1911 to 1916 inclusive :—

AVERAGE NUMBER OF PERSONS EMPLOYED IN VARIOUS FACTORIES.  
IN THE COMMONWEALTH, 1911 to 1916.

Class of Industry.	1911.	1912.	1913.	1914.	1915.	1916.
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ...	9,805	9,624	9,495	9,221	9,306	9,009
II. Treating oils and fats, animal, vegetable, etc. ...	2,019	2,091	2,091	2,259	2,523	2,399
III. Processes in stone, clay, glass, etc. ...	12,093	12,909	13,794	13,570	12,616	11,604
IV. Working in wood ...	27,948	30,660	31,646	30,137	26,030	23,336
V. Metal works, machinery, etc. ...	60,538	66,472	68,839	66,112	65,368	65,850
VI. Connected with food and drink, etc. ...	45,623	46,812	49,882	51,980	49,266	48,272
VII. Clothing and textile fabrics, etc. ...	83,845	84,661	84,237	81,076	78,952	80,292
VIII. Books, paper, printing and engraving ...	24,292	25,077	26,013	25,213	24,928	24,890
IX. Musical instruments, etc. ...	607	628	616	542	515	542
X. Arms and explosives ...	508	899	1,240	1,674	2,028	2,571
XI. Vehicles and fittings, saddlery and harness, etc. ...	13,294	13,400	13,913	13,125	12,350	12,006
XII. Ship and boat building and repairing ...	2,920	3,821	4,216	5,633	6,097	4,605
XIII. Furniture, bedding and upholstery ...	9,480	10,405	10,462	9,534	8,961	8,716
XIV. Drugs, chemicals and by-products ...	4,165	4,381	4,328	4,490	4,601	4,738
XV. Surgical & other scientific instruments ...	233	238	264	282	301	293
XVI. Jewellery, timepieces, and plated ware ...	2,142	2,302	2,170	2,026	1,878	1,835
XVII. Heat, light, and power ...	7,651	8,550	9,394	9,942	9,939	10,018
XVIII. Leatherware, n.e.i. ...	1,225	1,231	1,204	1,217	1,292	1,376
XIX. Minor wares, n.e.i. ...	3,321	3,295	3,297	3,695	4,120	4,400
Total ...	311,710	327,456	337,101	331,728	321,071	316,752



The total increase in the average number of hands employed from 1911 to 1916 was 5,042, or an annual average of 1,008. The greatest development took place in Classes V., VI. and XVII, the increases being 5,312; 2,649; and 2,367 respectively. Decreases occurred in Classes I., III., VII., XI and XVI.

**3. Classification of Numbers Employed in each State, according to Class of Industry.**—The following table shews a similar classification of employees in manufacturing industries in each State:—

**AVERAGE NUMBER OF PERSONS EMPLOYED IN VARIOUS FACTORIES  
IN EACH STATE, 1916.**

Class of Industry.	N.S.W. 1915-16.	Vic. 1915.	Q'land. 1916.	S. Aus. 1915.	W. Aus. 1916.	Tas. 1916.	C'wlth.
I. Treating raw material, product of agricul. and pastoral pursuits, etc.	3,528	3,345	641	844	267	384	9,009
II. Treating oils and fats, animal, vegetable, etc.	1,103	740	157	221	153	25	2,399
III. Processes in stone, clay, glass, etc.	5,470	3,822	518	1,202	401	191	11,604
IV. Working in wood	7,469	6,345	4,447	1,269	2,205	1,601	23,336
V. Metal works, machinery, etc.	27,367	19,217	6,482	8,096	2,801	1,287	65,850
VI. Connected with food and drink, etc.	14,409	13,778	13,585	3,274	1,566	1,660	48,272
VII. Clothing and textile fabrics, etc.	26,466	38,041	7,526	4,654	2,299	1,316	80,292
VIII. Books, paper, printing & engraving	9,368	8,861	2,962	1,835	1,118	726	24,890
IX. Musical instruments, etc.	351	145	...	16	...	...	542
X. Arms and explosives	1,243	1,324	...	4	...	...	2,571
XI. Vehicles and fittings, saddlery, and harness, etc.	4,049	4,589	1,169	1,275	514	410	12,006
XII. Ship and boat building & repairing	3,223	1,085	118	125	32	32	4,605
XIII. Furniture, bedding, and upholstery	3,464	2,689	1,091	305	381	286	8,716
XIV. Drugs, chemicals, and by-products	1,691	1,860	77	694	334	22	4,738
XV. Surgical and other scientific instruments	115	115	37	6	20	...	293
XVI. Jewellery, timepieces, & platedware	688	825	114	116	61	31	1,835
XVII. Heat, light, and power	3,771	4,012	747	844	340	344	10,018
XVIII. Leatherware, n.e.i.	582	604	139	24	27	...	1,376
XIX. Minor wares, n.e.i....	1,414	2,417	173	192	157	47	4,400
Total	116,401	113,834	39,983	25,496	12,676	8,362	316,752

The largest number employed in any particular class in the Commonwealth was in Class VII., in which there were 80,292 employees, or 25.35 per cent. of the whole number. The class affording employment to the smallest number of hands was Class XV., in which there were 293 hands, or 0.09 per cent. of the total number of employees. Classes VI., VII., and VIII. comprise those industries in which female labour is largely employed. (See § 4. 5 hereof.)

**4. Classification of Numbers Employed in each State according to Nature of Employment.**—In the following table the average numbers of persons employed in each State are classified according to the nature of their employment:—

**AVERAGE NUMBER OF PERSONS EMPLOYED IN EACH STATE, CLASSIFIED  
ACCORDING TO NATURE OF EMPLOYMENT, 1916.**

State.	Average Number of Persons Employed.						Total.
	Working Proprietors.	Managers and Overseers	Accountants and Clerks.	Engine-drivers and Firemen.	Workers, Skilled & Unskilled in Factory Mill or Workshop	Carters, Messengers and Others.	
N. S. Wales, 1915-16	3,959	3,711	4,821	2,798	98,176	2,936	116,401
Victoria, 1915	5,366	3,347	4,062	1,685	95,811	3,563	113,834
Queensland, 1916	1,473	1,435	1,846	1,442	31,827	1,960	39,983
South Australia, 1915	1,243	852	1,098	542	21,209	552	25,496
W. Australia, 1916	520	545	549	362	10,248	452	12,676
Tasmania, 1916	396	371	412	299	6,575	309	8,362
Commonwealth	12,957	10,261	12,788	7,128	263,846	9,772	316,752

\* Including out-workers.

## 5. Classification of Factories according to Number of Hands Employed.—

(i.) The number of factories in each State classified according to number of hands employed, and the average number of hands employed therein are shewn in the following table:—

**CLASSIFICATION OF FACTORIES IN EACH STATE ACCORDING TO NUMBER  
OF HANDS EMPLOYED, 1916.**

No. of Persons Employed in each Factory.	N.S.W. 1915-16.	Victoria. 1915.	Q'land. 1916.	S. Aust. 1915.	W. Aust. 1916.	Tas. 1916.	C wealth.
NUMBER OF FACTORIES.							
Under 4 ...	965	1,148	315	199	183	138	2,948
4 ...	570	623	179	177	85	59	1,693
5 to 10 ...	1,701	1,805	577	468	254	214	5,019
11 to 20 ...	908	827	310	187	121	68	2,421
21 to 50 ...	652	608	238	139	83	60	1,780
51 to 100 ...	211	214	83	52	26	20	606
Over 100 ...	203	188	80	44	19	9	543
Total ...	5,210	5,413	1,782	1,266	771	568	15,010

AVERAGE NUMBER OF HANDS EMPLOYED.

Under 4 ...	2,207	2,635	733	477	372	289	6,713
4 ...	2,280	2,492	716	708	340	236	6,772
5 to 10 ...	11,727	12,390	3,981	3,262	1,773	1,492	34,625
11 to 20 ...	13,160	12,011	4,557	2,647	1,782	996	35,153
21 to 50 ...	20,314	19,621	7,363	4,369	2,601	1,848	56,116
51 to 100 ...	14,659	14,693	6,041	3,548	1,704	1,346	41,991
Over 100 ...	52,054	49,992	16,592	10,485	4,104	2,155	135,382
Total ...	116,401	113,834	39,983	25,496	12,676	8,362	316,752

(ii.) Reference to the following table will shew the tendency for the proportionate number of hands employed in the larger establishments to still further increase and for that of the smaller factories to diminish. During the quinquennial period under discussion, the ratio of hands in factories employing under 21 hands to total number of employees in all factories shews a decline from 27.45 per cent. in 1911 to 26.29 in 1916. A heavier falling-off appears in establishments employing from 21 to 100 hands, viz., 34.21 to 30.97 per cent. The larger establishments with 101 hands and upwards during the same period exhibit an increase from 38.34 to 42.74 per cent. of total employed. The average number of hands per establishment in 1911 was 21.56, and in 1916, 21.10.

**CLASSIFICATION OF FACTORIES IN THE COMMONWEALTH ACCORDING TO  
NUMBER OF HANDS EMPLOYED DURING THE YEARS 1911 to 1916.**

Year.	Establishments Employing on the Average—							
	20 hands and under.		21 to 100 hands.		101 hands and upwards.		Total.	
	Es- tablish- ments.	Hands.	Es- tablish- ments.	Hands.	Es- tablish- ments.	Hands.	Es- tablish- ments.	Hands.
1911—								
Number ...	11,362	85,562	2,567	106,624	526	119,524	14,455	311,710
Average per establishment ...	...	7.53	...	41.54	...	227.23	...	21.56
Percentage on total ...	78.60	27.45	17.76	34.21	3.64	38.34	100.00	100.00
1912—								
Number ...	11,660	87,231	2,673	111,126	545	129,099	14,878	327,456
Average per establishment ...	...	7.48	...	41.57	...	236.88	...	22.01
Percentage on total ...	78.37	26.63	17.97	33.94	3.66	39.43	100.00	100.00
1913—								
Number ...	12,280	90,005	2,676	109,704	580	137,392	15,536	337,101
Average per establishment ...	...	7.33	...	41.00	...	236.88	...	21.70
Percentage on total ...	79.04	26.70	17.23	32.54	3.73	40.76	100.00	100.00
1914—								
Number ...	12,284	88,071	2,589	106,584	554	136,924	15,427	331,579
Average per establishment ...	...	7.17	...	41.16	...	247.15	...	21.49
Percentage on total ...	79.62	26.56	16.79	32.14	3.59	41.30	100.00	100.00
1915—								
Number ...	12,106	84,545	2,445	101,722	541	134,804	15,092	321,071
Average per establishment ...	...	6.99	...	41.60	...	249.18	...	21.27
Percentage on total ...	80.22	26.33	16.20	31.68	3.58	41.99	100.00	100.00
1916—								
Number ...	12,081	83,263	2,396	98,107	543	135,382	15,010	316,752
Average per establishment ...	...	6.89	...	41.11	...	249.32	...	21.10
Percentage on total ...	80.49	26.29	15.90	30.97	3.61	42.74	100.00	100.00

**6. Outworkers.**—The term “outworker” or “homeworker” has acquired a special meaning in connection with manufacturing industries, and technically embraces only those to whom work is given out by factory owners to be wrought upon in the employees' own homes. Individuals working for themselves are not included. The following table gives particulars of the average number of outworkers connected with factories in each State during each year from 1911 to 1916 inclusive :—

**NUMBER OF OUTWORKERS\* CONNECTED WITH FACTORIES, 1911 to 1916.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	O'wealth.
1911 ...	784	1,906	158	88	15	96	3,047
1912 ...	895	1,959	140	71	14	86	3,165
1913 ...	724	1,910	522	54	7	72	3,289
1914 ...	582†	1,737	117	58	8	58	2,560
1915 ...	582†	1,473	92	44	6	70	2,267
1916† ...	577	1,473	99	44	6	35	2,234

\* In all tables relating to number of hands employed in factories, outworkers are included.

† Year ended 30th June, 1915. ‡ See note † first table this section.

The Factories Acts in each State contain provisions regulating the employment of outworkers. Generally records of out-work must be kept by factory proprietors, specifying the names and remuneration of workers, and stating the places where the work is done. Further particulars are given in a later part of this book. (See Section XXVII. *Industrial Unionism and Industrial Legislation.*)

### § 4. Sex Distribution in Factories.

**1. Employment of Females in Factories.**—In all the States the employment of female labour in factories is now regulated by Act of Parliament. In Victoria the first Act dealing with the subject was passed in the year 1873, and provided that no female should be employed for more than eight hours a day without the permission of the Chief Secretary. The number of working hours for women is now limited to forty-eight per week in all the States, overtime being allowed only with the permission of the Departments, and then to a limited extent. The maximum periods of continuous labour, and the intervals of cessation therefrom, are also prescribed by the several Acts. Further reference is made to the restrictions regarding the employment of females in a later part of this book. (See Section XXVII. *Industrial Unionism and Industrial Legislation.*)

**2. Distribution of Employees according to Sex, 1911 to 1916.**—In New South Wales the ratio of the number of females employed in factories to the number of males during 1886 was about one to seven; in 1891 one to six; in 1903 it became about one to four; and is now just below one to three. In Victoria the ratio of females to males during the year 1886 was about one to five. Five years later (1891) it was somewhat less, but in 1896 had increased to about one woman to three men, and at present is slightly under one to two. In the remaining States, with the exception of Tasmania, the ratios at the latest date were less than one female employed to every four males, and in Tasmania slightly less than one to five. The proportion for the whole of the Commonwealth was more than one to three. The employment of women is, however, largely confined to a few trades.

The great prosperity in clothing and textile industries is one of the main causes of increase in female employment. Certain trades are specifically known as women's trades, such as clothing and textile trades, preparation of food, book-binding, and lighter work connected with the drug trade, as, for example, wrapping. In common also with commercial establishments, a considerable number of factories employ women as clerks and typists.

(i.) *Average Number of Males and Females Employed, 1911 to 1916.* The following table shows the average number of male and female employees in factories in each State from 1911 to 1916:—

#### AVERAGE NUMBER OF MALES AND FEMALES EMPLOYED IN MANUFACTURING INDUSTRIES, 1911 to 1916.

State.	1911.	1912.	1913.	1914.	1915.	1916.†
MALES.						
New South Wales ...	82,083	88,178	93,036	*90,394	*90,394	87,724
Victoria ...	73,573	77,565	80,054	79,772	75,971	75,971
Queensland ...	29,832	33,254	34,715	35,717	34,387	32,235
South Australia ...	22,629	23,083	23,323	22,111	20,772	20,772
Western Australia ...	13,212	13,805	14,625	14,996	12,290	10,259
Tasmania...	8,737	8,391	8,354	7,613	7,161	7,046
Commonwealth ...	230,066	244,276	254,107	250,603	240,975	234,007

\* Year ended 30th June, 1915.

† See note † first table this section.

**AVERAGE NUMBER OF MALES AND FEMALES EMPLOYED IN  
MANUFACTURING INDUSTRIES, 1911 to 1916—Continued.**

State.	1911.	1912.	1913.	1914.	1915.	1916.*
<b>FEMALES.</b>						
New South Wales ...	26,541	27,383	27,364	*26,217	*26,217	28,677
Victoria ...	38,375	38,543	38,690	38,627	37,863	37,863
Queensland ...	7,324	7,694	7,648	7,565	7,692	7,748
South Australia ...	5,256	5,417	5,188	4,763	4,724	4,724
Western Australia ...	2,587	2,577	2,674	2,644	2,341	2,417
Tasmania ...	1,561	1,566	1,430	1,309	1,259	1,316
Commonwealth ...	81,644	83,180	82,994	81,125	80,096	82,745

\* Year ended 30th June, 1915.

† See note † first table this section.

It will be seen that during the years specified there has been for the whole Commonwealth a total increase in the number of male employees of 3,941, or an annual average of 788, and in the number of female employees a total increase of 1,101, or an annual average of 220. The decline in numbers employed since 1913 is, of course, due in a large measure to the disorganising effect of the war.

(ii.) *Average Number of Males and Females Employed per 10,000 of Mean Population, 1911 to 1916.* The following table shews the average number of male and female employees per 10,000 of the mean male and female population respectively in each State from 1911 to 1916 :—

**AVERAGE NUMBER OF MALE AND FEMALE FACTORY EMPLOYEES PER 10,000 OF  
MEAN MALE AND FEMALE POPULATION RESPECTIVELY, 1911 to 1916.**

State.	1911.	1912.	1913.	1914.	1915.	1916.†
<b>MALES.</b>						
New South Wales ...	947	967	979	*935	*935	920†
Victoria ...	1,118	1,145	1,151	1,119	1,077	1,077†
Queensland ...	892	970	982	978	932	910
South Australia ...	1,084	1,077	1,062	1,002	960	960†
Western Australia ...	805	802	823	826	696	615
Tasmania ...	900	854	823	741	702	706
Commonwealth ...	986	1,009	1,015	981	948	936†
<b>FEMALES.</b>						
New South Wales ...	334	332	319	*293	*293	313†
Victoria ...	579	567	555	543	525	525†
Queensland ...	262	266	256	244	242	239
South Australia ...	260	261	242	217	212	212†
Western Australia ...	211	199	196	186	161	163
Tasmania ...	167	168	151	137	129	134
Commonwealth ...	379	374	361	342	333	340†

\* Year ended 30th June, 1915.

† See note † first table this section.

3. **Rate of Increase for each Sex.**—The percentages of annual increase during the years 1912 to 1916 in the average number of males and females employed in manufacturing industries in the several States and the Commonwealth are shewn below:—

**PERCENTAGE OF ANNUAL INCREASE IN NUMBERS OF MALE AND FEMALE EMPLOYEES, 1912 to 1916.**

State.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16. †
<b>MALES.</b>					
New South Wales ...	7.37	5.51	—2.84*	2.84*	—2.95†
Victoria ...	5.43	3.21	—0.35	—4.76	—4.76†
Queensland ...	11.47	4.39	2.89	—3.72	—6.26
South Australia ...	1.91	1.04	—5.20	—6.06	—6.06†
Western Australia ...	4.49	5.94	2.54	—18.04	—16.53
Tasmania ...	—3.96	—0.44	—8.87	—5.94	—1.61
Commonwealth ...	6.15	4.02	—1.38	—4.00	—2.89†

**FEMALES.**

New South Wales ...	3.17	—0.07	—4.19*	—4.19*	9.38†
Victoria ...	0.44	0.38	—0.16	—1.98	—1.98†
Queensland ...	4.99	—0.60	—1.08	1.68	0.73
South Australia ...	3.06	—4.23	—8.19	—0.82	—0.82†
Western Australia ...	—0.39	3.76	—1.12	—11.46	3.25
Tasmania ...	0.32	—8.68	—8.46	—3.82	4.55
Commonwealth ...	1.88	—0.22	—2.25	—1.27	3.31†

\* Eighteen months ended 30th June, 1915. † See note † first table this section.  
Note.—The minus (—) sign indicates decrease.

4. **Ratio of Female Employment in Factories.**—The extent to which females are employed in the factories of the Commonwealth may perhaps be best shewn by giving the masculinity of employees for each State for a series of years. The following table furnishes particulars for each of the years 1911 to 1916 inclusive:—

**EXCESS OF MALES OVER FEMALES PER 100 OF BOTH SEXES COMBINED, 1911 to 1916.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
1911	51.1	31.5	60.6	62.3	67.3	69.7	47.6
1912	52.6	33.6	62.4	62.0	68.6	68.6	49.2
1913	54.5	34.8	63.9	63.6	69.1	70.8	50.8
1914	*55.0	34.8	65.0	64.6	70.0	70.7	51.1
1915	*55.0	33.5	63.4	62.9	68.0	70.1	50.1
1916	†50.7	†33.5	61.2	†62.9	61.9	68.5	†47.8

\* Year ended 30th June, 1915. † See note † first table this section.

The proportion of the sexes has not materially changed during recent years, the 1915 figure for the whole of the Commonwealth, 50.1, being almost identical with that of 1905, 50.3, while the 47.8 for 1916 accords closely with 47.4 in 1909 and 47.6 in 1911. The tables given in the succeeding paragraph shew that the comparatively high proportions of females have been due not so much to the incursion of female labour into what may be termed men's trades, as to the activity in those trades in which women are ordinarily engaged, more especially in dressmaking, millinery, etc.

**5. Employment of Females in Particular Industries.**—The employment of women in manufacturing industries in Australia is largely confined to a few trades, of which the more important are comprised in Classes VI., VII., and VIII., viz., in connection with food, drink, etc., clothing and textile fabrics, and books, paper, printing, etc. The following table shews the average number of females employed in each of these classes in each State, and also shews the percentages of the average number so employed on the total average number of females employed in all classes of factories:—

**AVERAGE NUMBER OF FEMALES EMPLOYED IN PARTICULAR INDUSTRIES,  
AND PERCENTAGES ON AVERAGE TOTAL EMPLOYED, 1916.**

Class.	N.S.W. 1915-16.	Vict. 1915.	Q'land. 1916.	S. Aust. 1915.	W.Aust. 1916.	Tas. 1916.	CwIth.
AVERAGE NUMBER.							
VI. Food, drink, etc. ...	3,896	3,603	864	442	200	255	9,260
VII. Clothing and textile fabrics ...	19,218	23,262	5,745	3,434	1,792	861	59,312
VIII. Books, paper, printing, etc. ...	2,524	2,378	692	525	253	103	6,475
All other classes ...	3,039	3,620	447	323	172	97	7,698
Total ...	28,677	37,863	7,748	4,724	2,417	1,316	82,745

**PERCENTAGES ON TOTAL AVERAGE FEMALE EMPLOYEES.**

VI. Food, drink, etc. ...	13.59	9.52	11.15	9.36	8.27	19.38	11.19
VII. Clothing and textile fabrics ...	67.01	74.64	74.15	72.69	74.14	65.42	71.68
VIII. Books, paper, printing, etc. ...	8.80	6.28	8.93	11.11	10.47	7.83	7.83
All other classes ...	10.60	9.56	5.77	6.84	7.12	7.37	9.30
Total ...	100.00	100.00	100.00	100.00	100.00	100.00	100.00

It will be seen that by far the greater part of the total number of females employed in factories work in one or other of the three classes of industry indicated, Class VII. being the most important. The classification of the employment of females in the several industries in that class, and the relation of their number to that of the males so employed, are shewn in the following table:—

## FEMALE EMPLOYMENT IN EACH INDUSTRY IN CLASS VII. DURING 1916.

Industry.	New South Wales.* 1915-16.			Victoria* 1915.			Other States.*		
	Males.	Femls.	Femi- ninity. †	Males.	Femls.	Femi- ninity. †	Males.	Femls.	Femi- ninity. †
Woollen & tweed mills	501	668	14.29	960	1,103	6.93	298	397	14.24
Boots and shoes ...	2,540	1,659	-20.98	4,317	2,530	-26.10	1,440	836	-26.54
Slop clothing Clothing (tailoring) }	2,681	7,863	49.15	2,278	7,969	55.54	1,766	5,675	52.53
Dressmaking & millin'y	188	5,005	94.63	256	7,851	93.68	23	3,110	98.53
Dyeworks and cleaning	68	48	-17.24	79	86	4.24	24	16	-20.00
Furriers ...	22	37	25.42	65	147	38.68	...	...	...
Hats and caps ...	515	1,044	33.93	667	984	19.20	78	128	24.27
Waterproof and oilskin	51	149	49.00	52	170	53.15	...	...	...
Shirts, ties, and scarfs	255	2,464	81.24	423	6,795	88.28	81	1,509	89.81
Rope and cordage ...	290	11	-92.68	526	371	-17.28	152	85	-28.27
Tents and tarpaulins...	183	263	17.94	143	132	-4.00	91	69	-13.75
Other ...	4	7	27.27	13	124	81.02	...	7	100.00
Total Class VII....	7,248	19,218	45.23	9,779	28,262	48.59	3,953	11,832	49.91

\* See note † first table this section. † Excess of females over males per 100 of both sexes combined.  
NOTE.—Minus sign (—) denotes excess of males over females.

## § 5. Child Labour in Factories.

1. **Conditions of Child Labour.**—The employment of young persons in factories in each State of the Commonwealth is regulated by Acts of Parliament in a similar manner to the employment of female labour. Excepting under special circumstances, children under a certain age may not be employed in factories. The minimum age in all the States is 14, with the exception of South Australia, where it is 13 years, and Victoria, where the minimum for females is 15 years. Other restrictions on the employment of young persons in factories are more particularly referred to in a later part of this book. (See Section XXVII. *Industrial Unionism and Industrial Legislation*.) The general object of the restrictions imposed is to assure that a proper period shall be devoted to primary education, and that the early years of toil shall not exhaust the worker before the attainment of full growth.

2. **Average Number of Children Employed in Factories, 1911 to 1916.**—In the statistical compilations of the various States the term "child" may be taken to denote any person under sixteen years of age. The following table shows the average number of children of each sex employed in manufacturing industries in each State during the years 1911 to 1916:—

## AVERAGE NUMBER OF CHILDREN EMPLOYED IN FACTORIES, 1911 to 1916.

State.	1911.	1912.	1913.	1914.	1915.	1916.†
MALES.						
New South Wales	2,474	2,225	2,385	*2,437	*2,437	2,578
Victoria ...	2,623	2,652	2,743	2,898	3,355	3,355
Queensland ...	1,176	1,114	1,122	1,148	1,247	1,197
South Australia ...	999	1,078	1,122	1,064	1,068	1,068
Western Australia	368	356	346	381	414	398
Tasmania ...	280	322	283	213	262	217
Commonwealth ...	7,920	7,747	8,001	8,141	8,783	8,813

\* Year ended 30th June, 1915. † See note † first table this section.



**AVERAGE NUMBER OF CHILDREN EMPLOYED IN FACTORIES,  
1911 TO 1916.—Continued.**

State.	1911.	1912.	1913.	1914.	1915.	1916. †
<b>FEMALES.</b>						
New South Wales ...	2,267	2,093	2,086	*2,326	*2,326	2,605
Victoria ...	1,937	1,740	1,840	1,816	2,197	2,197
Queensland ...	818	764	701	713	835	745
South Australia ...	555	704	611	522	591	591
Western Australia ...	293	334	360	361	311	271
Tasmania ...	131	121	141	77	97	102
Commonwealth ...	6,001	5,756	5,739	5,815	6,357	6,511
<b>TOTAL.</b>						
New South Wales ...	4,741	4,318	4,471	*4,763	*4,763	5,183
Victoria ...	4,560	4,392	4,583	4,714	5,552	5,552
Queensland ...	1,994	1,878	1,823	1,861	2,082	1,942
South Australia ...	1,554	1,782	1,733	1,586	1,659	1,659
Western Australia ...	661	690	706	742	725	669
Tasmania ...	411	443	424	290	359	319
Commonwealth ...	13,921	13,503	13,740	13,956	15,140	15,324

\* Year ended 30th June, 1915.

† See note † first table this section.

**3. Percentage of Children to Total Persons Employed.**—The foregoing table shews a general increase in several of the States in the number of children employed in factories during the past quinquennial period. These increases for the first two years, however, when examined in conjunction with the total number of persons employed, shew a fairly regular decrease in the percentage of child labour. This decrease is particularly noticeable in Queensland, the percentage falling from 5.37 in 1911 to 4.30 in 1913. In 1914 there was both an actual and a percentage increase in several of the States, and in all of them during 1915. The 1916 figures shew an actual increase for New South Wales only, but percentage increases for New South Wales and Western Australia, while Queensland and Tasmania shew decreases both actual and per cent. of total employees.

**PERCENTAGE OF CHILDREN IN FACTORIES TO TOTAL NUMBER OF EMPLOYEES,  
1911 TO 1916.**

State.	1911.	1912.	1913.	1914.	1915.	1916. †
	%	%	%	%	%	%
New South Wales ...	4.36	3.74	3.71	*4.08	*4.08	4.45
Victoria ...	4.07	3.78	3.86	3.98	4.88	4.88
Queensland ...	5.37	4.59	4.30	4.30	4.95	4.86
South Australia ...	5.57	6.25	6.08	5.90	6.51	6.51
Western Australia ...	4.18	4.21	4.08	4.21	4.96	5.28
Tasmania ...	3.99	4.45	4.33	3.25	4.26	3.81
Commonwealth ...	4.47	4.12	4.08	4.21	4.72	4.84

\* Year ended 30th June, 1915.

† See note † first table this section.

**4. Industries Employing Child Labour.**—The employment of children is largely confined to a limited number of industries, the most important of which are specified in the table below, which shews the average number of children of each sex employed in the several industries indicated in each State :—

## NUMBER OF CHILDREN ENGAGED IN VARIOUS INDUSTRIES, 1916.

Class.	Industry.	N.S.W. 1915-16.		Victoria. 1915.		Q'land. 1916.		S. Aust. 1915.		W.A. 1916.		Tas. 1916.		C'w'th.	
		M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
III.	Bricks, tiles, pottery and earthenware	64	...	68	4	4	...	22	...	2	...	6	...	166	4
IV.	Joinery, boxes, cases, etc.	73	...	65	4	28	...	24	...	20	...	5	...	315	4
V.	Agricultural implem'ts	18	1	75	...	10	...	35	...	3	...	...	...	141	1
"	Engin'ring, ironworks, and foundries	212	5	353	1	75	1	92	...	57	...	9	...	798	7
"	Brass and copper	11	...	93	...	2	...	33	...	...	...	3	...	142	...
"	Galvanised iron-working and tinsmithing	77	22	124	53	71	2	87	...	...	...	4	...	363	77
"	Railway carriages, railway & tramway work-shops	106	...	221	...	19	1	99	...	10	...	...	...	455	1
VI.	Biscuits, cakes, etc.	142	108	55	55	12	4	16	9	26	17	20	5	271	198
"	Confectionery	62	90	24	52	26	38	28	30	8	6	...	...	148	216
"	Meat & fish preserving	3	1	24	...	114	...	7	...	...	...	...	...	148	1
"	Jams, pickles, sauces, etc.	17	26	26	22	24	...	22	29	2	2	19	6	110	85
"	Aerated waters, cordials, etc.	18	3	53	2	50	3	11	1	8	...	4	...	144	9
"	Tobacco, cigars, etc.	87	110	33	8	3	5	2	1	1	2	...	...	126	126
VII.	Woollen, tweed, and cotton mills...	30	101	155	122	16	31	16	16	...	...	3	16	220	286
"	Boots and shoes	163	220	208	236	47	54	39	40	13	9	14	19	484	578
"	Clothing (tailoring and slop)...	63	514	103	310	55	233	23	135	16	36	2	12	262	1,240
"	Dressmaking and millinery	4	484	13	446	1	145	...	133	...	104	...	31	18	1,343
"	Hats and caps	28	79	54	30	2	5	6	5	...	...	...	...	90	119
"	Shirts, ties, scarfs, etc.	19	234	14	436	7	97	3	77	...	36	...	...	43	880
VIII.	Electrotyping, printing and binding...	298	198	432	120	199	74	81	21	59	32	40	5	1,109	450
"	Paper making, paper boxes, etc.	55	117	25	46	4	8	26	76	4	7	...	...	114	254
XI.	Coach & wagon building, etc.	52	1	96	...	26	1	36	...	7	...	14	...	231	2
"	Cycles and motors	25	...	79	...	27	1	42	...	16	...	15	...	204	1
XIII.	Billiard tables, cabinet making and furniture	64	...	70	2	71	2	24	1	20	...	4	...	253	5

5. **Apprenticeship.**—It is obvious that the age of apprenticeship in each State must be limited by the conditions governing the employment of child labour in factories. The early Apprentices Acts in some of the States are apparently in conflict on this point with the Factories Acts. The statutes limiting the age at which children may begin to work may be regarded as applicable by way of preventing too early apprenticeship, as may also those directing that education be continued up to a certain age or standard.

Indentures must be entered into specifying the conditions of the employment. Apprenticeships may not exceed seven years in duration, and usually become inoperative at twenty-one years of age, or in the case of women, on marriage. In Tasmania, however, the section of the Wages Boards Act 1910 which deals with apprentices has been amended to provide for the issue of licenses by the Minister to enable persons to complete their term of apprenticeship after the age of twenty-one if necessary.

The Arbitration Courts and Wages Boards have power to limit the number of apprentices which may be taken into a factory and specify the term of apprenticeship. No general statistics of the number of apprentices in Australia have been collected up to the present time. Other enactments relating to child labour are referred to in Section XXVII. of this book, *Industrial Unionism and Industrial Legislation*.

## § 6. Amount of Wages Paid and Value of Production.

1. **Introduction.**—The importance of the manufacturing industries of the Commonwealth is indicated by the fact that the total value of the output for 1916 was £172,574,845, of which amount the sum of £105,180,445 represents the value of the raw materials used. The difference between these two amounts, viz., £67,394,400, represents

the amount by which the value of the raw materials was enhanced in the process of manufacture. The total amount of salaries and wages paid in factories during 1916 was £33,828,840.

**2. Amount of Salaries and Wages Paid.**—The total amount of salaries and wages paid during the year in various classes of factories in the Commonwealth (excluding all sums drawn by working proprietors) is shewn in the following table:—

**AMOUNT OF SALARIES AND WAGES PAID IN FACTORIES  
IN COMMONWEALTH, 1916.\***

Class of Industry:	N.S.W. 1915-16.	Vict. 1915.	Q'land. 1916.	S. Aust. 1915.	W. Aust. 1916.	Tas. 1916.	C'wlth.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ...	392,654	354,008	79,125	67,682	20,650	21,505	935,627
II. Treating oils and fats, animal, vegetable, etc. ...	119,678	82,628	16,664	26,088	21,244	2,950	269,252
III. Processes in stone, clay, glass, etc. ...	701,306	464,874	51,348	131,752	50,544	15,008	1,414,832
IV. Working in wood ...	839,666	710,367	475,480	140,698	346,729	164,923	2,678,453
V. Metal works, machinery, etc.	4,065,413	2,399,009	851,755	1,094,901	430,061	181,836	9,022,975
VI. Connected with food and drink, etc. ...	1,618,761	1,454,381	1,506,120	319,685	204,849	153,695	5,257,491
VII. Clothing and textile fabrics, etc. ...	1,933,642	2,449,548	464,492	277,858	162,577	84,893	5,373,010
VIII. Books, paper, printing and engraving ...	1,105,061	994,229	353,548	184,162	162,643	89,792	2,889,435
IX. Musical instruments, etc. ...	51,297	15,692	...	1,692	...	...	68,681
X. Arms and explosives ...	239,457	136,660	...	366	...	...	376,483
XI. Vehicles and fittings, saddlery and harness, etc. ...	449,609	443,661	98,240	121,839	58,440	37,450	1,209,239
XII. Ship and boat building and repairing ...	520,174	143,261	12,711	18,100	3,579	3,487	701,312
XIII. Furniture, bedding and upholstery ...	385,808	254,626	110,156	76,656	47,571	25,769	900,586
XIV. Drugs, chemicals, and by-products ...	170,526	190,617	5,772	76,429	67,077	1,329	511,750
XV. Surgical and other scientific instruments ...	13,410	10,394	3,408	917	1,379	...	29,508
XVI. Jewellery, timepieces, and platedware ...	89,846	83,194	10,754	13,648	6,863	2,828	207,133
XVII. Heat, light, and power ...	532,041	553,368	118,460	134,427	58,115	47,590	1,444,004
XVIII. Leatherware, n.e.i. ...	56,800	46,091	11,764	2,125	1,827	...	118,608
XIX. Minor wares, n.e.i. ...	128,696	249,147	11,457	16,104	12,648	2,409	420,461
<b>Total</b> ...	<b>13,413,845</b>	<b>11,036,345</b>	<b>4,181,254</b>	<b>2,705,130</b>	<b>1,656,799</b>	<b>835,467</b>	<b>33,828,840</b>

\* Excluding all amounts drawn by working proprietors.

The maximum amount of salaries and wages paid in any particular class was in Class V., the amount being £9,022,975, or 26.67 per cent. on the total amount; the minimum amount was in Class XV., £29,508, or 0.09 per cent. on the total amount. The State in which the largest amount was paid was New South Wales. The following statement shews the total amount of salaries and wages paid, and the average amount paid per employee in each State, during each of the years 1911 to 1916; the figures are exclusive of the amounts drawn from the business by working proprietors:—

**AMOUNT OF SALARIES AND WAGES PAID AND AVERAGE AMOUNT PER ANNUM  
PAID PER EMPLOYEE, 1911 to 1916.**

Year.	Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wlth.
		£	£	£	£	£	£	£
1911	Total amount paid ...	10,047,656	8,911,019	3,113,835	2,645,386	1,992,883	827,592	27,528,371
	Average per employee ...	96.35	83.48	87.15	90.56	120.80	94.47	92.25
1912	Total amount paid ...	11,592,052	10,102,244	3,699,065	2,869,653	2,169,144	855,334	31,287,492
	Average per employee ...	104.44	91.19	93.88	105.62	136.67	90.40	99.74
1913	Total amount paid ...	12,683,384	10,714,336	4,075,191	3,034,537	2,215,187	883,452	33,606,087
	Average per employee ...	109.66	94.74	100.05	111.66	132.31	95.18	104.14
1914*	Total amount paid ...	12,667,721	11,099,940	4,211,480	2,946,296	2,342,428	835,829	34,103,703
	Average per employee ...	112.94	98.50	100.91	115.31	137.30	98.82	107.36
1915*	Total amount paid ...	12,667,721	11,036,345	4,226,635	2,705,130	1,791,276	783,547	33,210,654
	Average per employee ...	112.94	101.75	104.91	111.53	127.31	97.82	108.00
1916†	Total amount paid ...	13,413,845	11,036,345	4,181,254	2,705,130	1,656,799	835,467	33,828,840
	Average per employee ...	119.29	101.75	108.13	111.53	136.29	104.88	111.35

\* New South Wales figures for year ended 30th June, 1915. † See note ‡ first table this section.

In comparing the figures in the preceding table, regard should be paid to the nature of certain industries which are carried on to a greater extent in some States than in others (see § 2 hereof). In Victoria, for instance, there are a large number of hands employed in Class VII., of whom a large percentage are women and children. The position occupied by Western Australia is principally due to the high ratio of male to female employees in that State.

It will be noted that there has been a persistent increase in the average wage paid per employee in each of the States during the period under review. Taking the Commonwealth as a whole, during the period 1911-16 there has been an increase of 22.88 per cent. on the total amount of wages paid, and 19.05 per cent. on the average paid per employee.

The following tables shew the approximate amount paid in salaries and wages to males and females in each class of industry in each State during 1916, and the total amounts paid to employees of each sex in New South Wales, Victoria, South Australia and Tasmania during the last six years, and in Queensland and Western Australia during the last five years:—

**AMOUNT\* OF SALARIES AND WAGES PAID TO MALE AND FEMALE HANDS  
EMPLOYED IN EACH CLASS OF INDUSTRY IN THE SEVERAL STATES  
OF THE COMMONWEALTH DURING 1916.**

Class of Industry.	N.S.W. 1915-16.	Vic. 1915.	Q'land. 1916.	S. Aust. 1915.	W. A. 1916.	Tas. 1916.	C'wealth.
<b>MALES.</b>							
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ....	387,507	353,137	78,740	66,834	20,650	21,478	928,346
II. Treating oils and fats, animal, vegetable, etc. ....	107,300	78,171	16,196	25,321	21,144	2,662	250,694
III. Processes in stone, clay, glass, etc. ....	697,835	460,568	51,013	131,461	50,008	14,988	1,405,923
IV. Working in wood ....	833,980	706,349	471,414	139,507	316,216	163,774	2,661,240
V. Metal works, machinery, etc. ....	4,040,439	2,382,244	847,380	1,091,705	428,239	181,419	8,971,426
VI. Connected with food and drink, etc. ....	1,414,497	1,269,686	1,464,207	304,182	195,470	140,701	4,788,743
VII. Clothing and textile fa- brics, etc. ....	916,104	1,081,185	209,323	129,311	59,613	44,763	2,440,299
VIII. Books, paper, printing and engraving ....	971,371	874,728	318,258	165,073	148,501	85,434	2,564,165
IX. Musical instruments, etc. ....	49,475	15,397	...	1,692	...	...	66,564
X. Arms and explosives ....	239,277	83,599	...	366	...	...	323,242
XI. Vehicles and fittings, saddlery and harness, etc. ....	442,474	434,312	95,557	120,296	57,229	36,020	1,185,888
XII. Ship and boat building and repairing ....	519,818	143,261	12,711	18,100	3,579	3,487	700,956
XIII. Furniture, bedding and upholstery ....	359,230	239,247	104,900	75,522	46,612	24,785	850,296
XIV. Drugs, chemicals and by-products ....	137,106	171,964	3,966	73,461	64,692	1,209	452,308
XV. Surgical and other scien- tific instruments ....	11,814	9,863	3,313	917	1,279	...	27,186
XVI. Jewellery, timepieces and platedware ....	83,429	79,178	9,808	13,255	6,838	2,828	195,336
XVII. Heat, light and power ....	528,891	524,570	117,150	133,050	58,000	47,252	1,408,913
XVIII. Leatherware, n.e.i. ....	45,888	35,242	9,972	1,656	1,617	...	93,775
XIX. Minor wares, n.e.i. ....	101,743	219,151	9,580	14,870	10,773	1,989	358,106
Total ....	11,888,028	9,161,852	3,823,488	2,506,579	1,520,760	772,789	29,673,496

\* Exclusive of amount drawn by working proprietors.

**AMOUNT\* OF SALARIES AND WAGES PAID TO MALE AND FEMALE HANDS  
EMPLOYED IN EACH CLASS OF INDUSTRY, Etc.—Continued.**

Class of Industry.	N.S.W. 1915-16.	Vic. 1915.	Q'land. 1916.	S. Aust. 1915.	W. A. 1916	Tas. 1916.	C'wealth.
<b>FEMALES.</b>							
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural & pastoral pursuits, etc.	5,147	871	385	848	...	30	7,281
II. Treating oils and fats, animal, vegetable, etc.	12,478	4,457	468	767	100	288	18,558
III. Processes in stone, clay, glass, etc.	3,421	4,306	335	291	536	20	8,909
IV. Working in wood	5,686	4,608	4,066	1,191	513	1,149	17,213
V. Metal works, machinery, etc.	24,974	16,765	4,375	3,196	1,822	417	51,549
VI. Connected with food and drink, etc.	204,264	184,695	41,913	15,503	9,379	12,994	468,748
VII. Clothing and textile fabrics, etc.	1,017,538	1,368,363	255,169	148,547	102,964	40,130	2,932,711
VIII. Books, paper, printing and engraving	133,190	119,501	35,290	19,089	13,842	4,358	325,270
IX. Musical instruments, etc.	1,822	295	...	...	...	...	2,117
X. Arms and explosives	180	53,061	...	...	...	...	53,241
XI. Vehicles and fittings, saddlery & harness, etc.	7,135	9,349	2,683	1,543	1,211	1,430	23,351
XII. Ship and boat building and repairing	356	...	...	...	...	...	356
XIII. Furniture, bedding, and upholstery	26,578	15,379	5,256	1,134	959	984	50,290
XIV. Drugs, chemicals, and by-products	33,420	18,653	1,806	2,968	2,385	120	59,352
XV. Surgical and other scientific instruments	1,596	531	95	...	100	...	2,322
XVI. Jewellery, timepieces and platedware	6,417	4,016	946	393	25	...	11,797
XVII. Heat, light, and power	3,150	28,798	1,310	1,377	118	338	35,091
XVIII. Leatherware, n.e.i.	11,512	10,849	1,792	470	210	...	24,833
XIX. Minor wares, n.e.i.	26,953	29,996	1,877	1,234	1,875	420	62,355
Total	1,525,817	1,874,493	357,766	198,551	136,039	62,678	4,155,344

\* Exclusive of amount drawn by working proprietors.

**AMOUNT\* OF SALARIES AND WAGES PAID TO MALES AND FEMALES  
IN FACTORIES IN CERTAIN STATES, 1911 to 1916.**

Particulars.	N.S.W.	Victoria.	Q'land.	S.A.	W.A.	Tas.	C'wlth.
<b>MALES.</b>							
1911. Amount paid	£ 8,917,577	7,357,735	...	2,430,263	...	773,900	...
Per cent. on total	88.76	82.57	...	91.87	...	93.51	...
Average per employee	£ 114.22	106.62	...	113.66	...	93.67	...
1912. Amount paid	£ 10,263,733	8,388,613	3,386,191	2,647,842	2,024,318	798,098	27,528,795
Per cent. on total	88.71	83.04	91.54	92.25	93.34	93.31	87.99
Average per employee	£ 122.50	115.18	106.57	121.41	152.02	100.85	118.86
1913. Amount paid	£ 11,323,791	8,925,814	3,744,050	2,809,066	2,068,212	826,358	29,697,291
Per cent. on total	89.28	83.30	91.87	92.57	93.37	93.54	88.37
Average per employee	£ 127.76	118.94	112.95	127.43	146.79	105.09	123.32
1914. Amount paid	£ 11,296,572	9,252,336	3,890,472	2,734,603	2,199,961	782,300	30,146,244
Per cent. on total	89.18	83.35	92.14	92.81	93.92	93.60	88.40
Average per employee	£ 130.98	123.84	113.39	131.21	152.31	109.24	126.86
1915. Amount paid	£ 11,296,572	9,161,852	3,886,165	2,506,579	1,667,477	723,010	29,241,655
Per cent. on total	89.18	83.02	91.94	92.66	93.09	92.27	88.05
Average per employee	£ 130.98	128.76	118.03	122.92	141.93	106.97	128.02
1916. Amount paid	£ 11,868,028	9,161,852	3,823,488	2,506,579	1,520,760	772,789	29,673,496
Per cent. on total	88.63	83.02	91.44	92.66	91.79	92.50	87.72
Average per employee	£ 141.46	128.76	123.57	132.92	155.80	116.10	133.58
<b>FEMALES.</b>							
1911. Amount paid	£ 1,130,079	1,553,284	...	215,123	...	53,692	...
Per cent. on total	11.24	17.43	...	8.13	...	6.49	...
Average per employee	£ 43.10	41.16	...	41.44	...	34.98	...
1912. Amount paid	£ 1,308,319	1,713,631	312,874	222,123	144,514	57,236	3,758,697
Per cent. on total	11.29	16.96	8.46	7.75	6.66	6.69	12.10
Average per employee	£ 48.39	45.15	41.00	41.43	56.56	37.00	45.79
1913. Amount paid	£ 1,359,593	1,788,522	331,141	225,471	146,975	57,094	3,968,796
Per cent. on total	10.72	16.70	8.13	7.43	6.63	6.46	11.63
Average per employee	£ 50.29	47.01	43.66	43.94	55.42	40.24	47.74
1914. Amount paid	£ 1,371,149	1,847,604	331,017	211,693	142,467	53,529	3,957,459
Per cent. on total	10.82	16.65	7.86	7.19	6.08	6.40	11.60
Average per employee	£ 52.91	48.65	44.06	44.95	54.44	41.27	49.46
1915. Amount paid	£ 1,371,149	1,874,493	340,470	198,551	123,799	60,537	3,968,999
Per cent. on total	10.82	16.98	8.06	7.34	6.91	7.73	11.95
Average per employee	£ 52.91	50.24	44.62	42.47	53.34	48.39	50.18
1916. Amount paid	£ 1,525,817	1,874,493	357,766	198,551	136,039	62,678	4,155,344
Per cent. on total	11.37	16.98	8.56	7.34	8.21	7.50	12.28
Average per employee	£ 53.72	50.24	46.29	42.47	56.80	47.85	50.79

\* Exclusive of amounts drawn by working proprietors. † Year ended 30th June, 1915, for New South Wales. ‡ See note † first table this section.

A further analysis of salaries and wages paid is given in the following table, the amounts paid to managers, overseers, etc., being differentiated from those paid to other employees. As previously mentioned, amounts drawn by working proprietors are excluded in all cases.

**DETAILS OF SALARIES AND WAGES PAID TO MANAGERS, OVERSEERS, Etc.,  
AND OTHER EMPLOYEES IN FACTORIES DURING 1916.**

Class of Industry.	Salaries and Wages Paid to—						
	Managers, Overseers, Accountants, and Clerks.		All Other Employees.		All Employees.		
	Males.	Females.	Males.	Females.	Males.	Females.	Total.
I. Treating raw material, product of agricultural and pastoral pursuits, etc.	£	£	£	£	£	£	£
II. Treating oils and fats, animal, vegetable, etc.	100,191	1,750	828,155	5,531	928,346	7,281	935,627
III. Processes in stone, clay, glass, etc.	57,150	4,047	193,544	14,511	250,694	18,558	269,252
IV. Working in wood	144,996	3,994	1,260,927	4,915	1,405,923	8,909	1,414,832
V. Metal works, machinery, etc.	318,598	15,367	2,342,642	1,846	2,661,240	17,213	2,678,453
VI. Connected with food and drink, etc.	770,166	27,817	8,201,260	23,732	8,971,426	51,549	9,022,975
VII. Clothing and textile fabrics, etc.	966,444	53,116	3,822,299	415,632	4,788,743	468,748	5,257,491
VIII. Books, paper, printing and engraving	379,902	163,813	2,060,397	2,768,898	2,440,299	2,932,711	5,373,010
IX. Musical instruments, etc.	471,874	50,479	2,092,291	274,791	2,564,165	325,270	2,889,435
X. Arms and explosives	8,512	1,137	58,052	980	66,564	2,117	68,681
XI. Vehicles and fittings, saddlery and harness, etc.	18,473	2,600	304,769	50,641	323,242	53,241	376,483
XII. Ship and boat building and repairing	119,615	10,499	1,066,273	12,852	1,185,888	23,351	1,209,239
XIII. Furniture, bedding, & upholstery	51,378	262	649,578	94	700,956	356	701,312
XIV. Drugs, chemicals, and by-products	67,261	9,419	783,035	40,871	850,296	50,290	900,586
XV. Surgical & other scientific instruments	94,963	8,686	357,435	50,666	452,398	59,352	511,750
XVI. Jewellery, timepieces, and plated ware	4,228	492	22,958	1,830	27,186	2,322	29,508
XVII. Heat, light, and power	17,733	3,582	177,603	8,215	195,336	11,797	207,133
XVIII. Leatherware, n.e.i.	242,725	6,800	1,166,188	28,291	1,408,913	35,091	1,444,004
XIX. Minor wares, n.e.i.	14,040	1,793	79,735	23,040	93,775	24,833	118,608
	39,717	4,237	318,389	58,118	353,106	62,355	420,461
Total	3,887,966	369,890	25,785,530	3,785,454	29,673,496	4,155,344	33,828,840
Average paid per employee	206.77	87.11	126.89	48.82	133.66	50.91	111.35

**3. Value of Fuel and Light used in Factories.**—The amount expended in factories on fuel and light is of considerable importance; in 1916 it amounted to £3,383,598. The classes of industry in which fuel was most extensively used were Class V., Metal Works, Machinery, etc., £1,060,330; Class VI., Connected with Food, Drink, etc., £678,347; Class XVII., Heat, Light, Power, etc., £576,901, of which amount £484,353 was expended on generating electric light and power; and Class III., £402,566, of which £282,364 was represented in brick and pottery works, etc., and glass

factories. The following tables shew the value of fuel and light used in the different classes of industry in the several States of the Commonwealth at latest date and of the total used for each of the last six years :—

### VALUE OF FUEL AND LIGHT USED IN FACTORIES IN COMMONWEALTH, 1916.

Class of Industry.	N.S.W. 1915-16	Vic. 1915.	Q'land. 1916.	S.A. 1915.	W.A. 1916.	Tas. 1916.	C'with.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ...	48,105	36,104	14,151	7,873	2,162	1,694	110,089
II. Treating oils and fats, animal, vegetable, etc. ...	26,221	14,945	2,545	6,596	1,168	328	51,803
III. Processes in stone, clay, glass, etc. ...	209,186	125,886	5,598	42,213	14,922	4,761	409,566
IV. Working in wood ...	24,785	17,161	8,396	3,893	2,392	2,129	58,756
V. Metal wks. machinery, etc. ...	536,854	173,972	32,689	217,212	28,760	70,813	1,060,390
VI. Connected with food and drink, etc. ...	209,142	186,341	182,031	51,297	30,717	18,819	678,347
VII. Clothing and textile fabrics, etc. ...	47,628	76,820	8,823	9,128	3,720	2,204	148,323
VIII. Books, paper, printing, and engraving ...	43,009	42,441	14,625	6,959	5,551	1,737	114,322
IX. Musical instruments, etc. ...	250	233	...	32	...	...	515
X. Arms and explosives ...	4,932	6,188	...	3	...	...	11,123
XI. Vehicles and fittings, saddlery and harness, etc. ...	15,284	14,414	2,264	5,365	3,091	1,706	42,124
XII. Ship and boat building and repairing ...	16,782	3,289	257	342	21	59	20,750
XIII. Furniture, bedding, and upholstery ...	8,868	7,589	3,225	2,025	1,480	695	23,882
XIV. Drugs, chemicals, and by-products ...	16,592	16,619	485	9,411	5,541	222	48,870
XV. Surgical and other scientific instruments ...	331	426	211	27	70	...	1,065
XVI. Jewellery, timepieces, and plated ware ...	1,800	2,751	538	506	202	67	5,864
XVII. Heat, light, and power ...	313,199	87,958	34,277	36,633	93,382	11,452	576,901
XVIII. Leatherware, n.e.i. ...	1,047	1,509	261	40	41	...	2,898
XIX. Minor wares, n.e.i. ...	4,175	20,320	78	176	303	18	25,070
Total ...	1,528,220	834,966	310,454	399,731	193,523	116,704	3,383,598

### VALUE OF FUEL AND LIGHT USED IN FACTORIES IN COMMONWEALTH DURING THE YEARS 1911 to 1916.

Year.	N.S.W.	Victoria.	Q'land.	S.A.	W.A.	Tas.	C'wealth.
	£	£	£	£	£	£	£
1911 ...	1,242,613	637,497	222,560	338,565	176,659	140,816	2,758,710
1912 ...	1,360,141	683,376	261,978	363,403	191,025	187,461	3,047,384
1913 ...	1,371,425	739,835	328,519	417,280	198,161	185,681	3,240,901
1914 ...	1,364,186*	804,325	335,219	406,987	210,192	189,012	3,309,921
1915 ...	1,364,186*	834,966	300,716	399,731	187,121	110,803	3,197,523
1916† ...	1,528,220	834,966	310,454	399,731	193,523	116,704	3,383,598

\* Year ended 30th June, 1915.

† See note † first table this section.

4. Value of Raw Materials used in Factories.—The total value of raw materials worked up (i.e., exclusive of fuel, lubricants, etc.) in factories in the Commonwealth during 1916 was £105,180,445, which represents 60.95 per cent. of the total value of the finished products. (See next paragraph.) The following table shews the value of the raw materials worked up in various classes of industry in each State :—

## VALUE OF RAW MATERIALS WORKED UP IN FACTORIES IN COMMONWEALTH, 1916.

Class of Industry.	N.S.W. 1915-16.	Vic. 1915.	Q'land. 1916.	S.A. 1915.	W.A. 1916.	Tas. 1916.	C'wlth.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ...	5,105,713	3,606,032	1,839,057	668,712	198,126	182,578	11,600,218
II. Treating oils and fats, animal, vegetable, etc. ...	1,002,745	559,419	75,585	131,746	106,315	9,403	1,885,216
III. Processes in stone, clay, glass, etc. ...	418,683	200,961	17,015	61,019	19,370	5,788	725,836
IV. Working in wood ...	2,119,551	1,105,174	738,107	519,249	87,800	109,104	4,678,985
V. Metal wks. machinery, etc. ...	9,854,145	3,135,179	880,259	3,452,227	445,579	577,674	18,345,063
VI. Connected with food and drink, etc. ...	17,172,757	11,657,985	10,840,027	2,539,843	1,184,804	1,106,896	44,502,312
VII. Clothing and textile fabrics, etc. ...	3,902,436	5,710,117	1,059,272	480,030	334,000	148,228	11,634,083
VIII. Books, paper, printing, and engraving ...	1,193,036	1,026,496	252,581	198,859	151,681	72,331	2,894,984
IX. Musical instruments, etc. ...	69,255	10,343	...	658	...	...	80,256
X. Arms and explosives ...	58,229	338,875	...	701	...	...	397,805
XI. Vehicles and fittings, saddlery and harness, etc. ...	445,449	519,207	125,560	125,971	80,562	45,796	1,342,545
XII. Ship and boat building and repairing ...	190,744	98,730	9,822	9,591	2,827	3,069	314,783
XIII. Furniture, bedding, and upholstery ...	555,423	419,782	130,241	77,257	70,078	27,400	1,280,181
XIV. Drugs, chemicals, and by-products ...	912,674	789,583	16,427	341,455	279,958	16,151	2,356,248
XV. Surgical and other scientific instruments ...	7,023	9,796	2,772	590	1,652	...	21,833
XVI. Jewellery, timepieces, and plated ware ...	103,274	156,433	12,254	16,601	9,208	667	298,437
XVII. Heat, light, and power ...	646,245	474,147	73,388	62,840	42,491	35,986	1,335,097
XVIII. Leatherware, n.e.i. ...	174,462	179,785	42,481	5,283	2,686	...	404,697
XIX. Minor wares, n.e.i. ...	295,235	730,699	13,075	24,804	16,501	1,552	1,081,866
Total ...	44,227,079	30,728,743	16,127,926	8,720,436	3,033,638	2,342,623	105,180,445

The class in which the maximum value of raw materials was used was Class VI., "Connected with Food and Drink, etc.," the value being £44,502,312. The next important class in order of value was Class V., "Metal Works, Machinery, etc.," in which raw materials to the value of £18,345,063 were used. The class in which the minimum value appears is Class XV., "Surgical and other Scientific Instruments," the value being only £21,833. The following table gives particulars for the six years ended 1916:—

## VALUE OF RAW MATERIALS WORKED UP IN FACTORIES IN COMMONWEALTH DURING THE YEARS 1911 to 1916.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
	£	£	£	£	£	£	£
1911 ...	33,670,951	25,029,525	8,788,335	7,503,979	2,059,346	1,952,240	79,004,376
1912 ...	37,122,441	27,002,302	11,078,954	8,199,110	2,586,195	2,286,618	88,275,620
1913 ...	40,537,476	28,465,699	14,183,539	8,354,258	2,782,839	2,083,666	96,407,477
1914 ...	42,559,370*	28,986,694	15,710,794	7,931,175	2,608,312	1,992,719	99,789,064
1915 ...	42,559,370*	30,728,743	15,939,583	8,720,436	2,634,700	2,193,250	102,776,082
1916† ...	44,227,079	30,728,743	16,127,926	8,720,436	3,033,638	2,342,623	105,180,445

\* Year ended 30th June, 1915.

† See note † first table this section.

5. Total Value of Output of Manufacturing Industries.—The value of the output of new goods manufactured and repairs effected in factories of various classes in each State is shown in the following table. The figures given represent not only the increase in value due to the process of manufacture, but also include the value of the raw materials used. The difference between the value of the materials used and the total output (see paragraph 6 hereof) is the real value of production from manufactories:—



## TOTAL VALUE OF OUTPUT OF FACTORIES IN COMMONWEALTH, 1916.

Class of Industry.	N.S.W. 1915-6.	Victoria. 1915.	Q'land. 1916.	S.A. 1915.	W.A. 1916.	Tas. 1916.	C'w'lth.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural & pastoral pursuits, etc.	6,083,338	4,503,751	2,344,981	838,118	255,036	227,846	14,253,070
II. Treating oils and fats, animal, vegetable, etc. ...	1,409,467	858,554	129,791	182,235	152,527	13,177	2,745,751
III. Processes in stone, clay, glass, etc. ...	1,862,081	1,060,652	126,138	301,247	100,415	36,156	3,486,689
IV. Working in wood ...	3,327,180	2,204,757	1,487,405	757,427	578,525	346,985	8,702,279
V. Metal works, mach'y, etc.	17,518,290	6,705,272	2,113,044	5,618,230	986,174	1,545,638	34,486,648
VI. Connected with food and drink, etc. ...	21,730,548	15,514,965	15,021,253	3,342,683	1,798,771	1,518,417	58,926,637
VII. Clothing and textile fabrics, etc. ...	7,132,665	9,906,499	1,931,260	911,646	566,516	300,384	20,748,970
VIII. Books, paper, printing, and engraving ...	3,019,964	2,829,505	925,909	502,450	453,043	200,358	7,931,229
IX. Musical instruments, etc.	148,075	27,310	...	2,753	...	...	178,138
X. Arms and explosives ...	356,529	537,170	...	948	...	...	894,647
XI. Vehicles and fittings, saddlery and harness, etc.	1,129,517	1,188,035	329,772	313,293	168,255	103,714	3,232,586
XII. Ship and boat building and repairing ...	797,608	296,995	30,824	35,218	8,674	8,021	1,177,340
XIII. Furniture, bedding, and upholstery ...	1,108,604	825,541	316,986	185,464	133,302	73,037	2,642,934
XIV. Drugs, chemicals, and by-products ...	1,484,730	1,333,729	44,224	546,145	406,471	20,034	3,835,333
XV. Surgical and other scientific instruments ...	30,458	29,498	9,372	2,240	4,663	...	76,231
XVI. Jewellery, timepieces, and plated ware ...	242,923	313,990	32,096	40,794	18,414	5,834	654,051
XVII. Heat, light, and power ...	2,825,446	1,932,353	602,432	358,275	335,050	170,913	6,214,469
XVIII. Leatherware, n.e.i. ...	281,288	286,920	63,573	8,609	6,011	...	646,431
XIX. Minor wares, n.e.i. ...	501,153	1,120,597	31,964	46,448	35,264	6,016	1,741,442
Total ...	70,989,864	51,466,033	25,541,024	13,994,223	6,007,111	4,576,530	172,574,845

It will be seen that the State of New South Wales far outstrips the other States in the total value of the output of her factories, the value being £70,989,864, or 41.14 per cent. on the total for the Commonwealth. The next State in order of value is Victoria, which produced 29.82 per cent.; the value of the output of Queensland was 14.80 per cent.; of South Australia 8.11 per cent.; of Western Australia 3.48 per cent.; and of Tasmania 2.65 per cent. The two most important classes in order of value of output (Classes VI. and V.) are the same as in order of value of raw materials used. The following statement shews the value of output of factories, value per employee, and value per head of mean population in each State during the six years ended 1916:—

## TOTAL VALUE OF OUTPUT OF FACTORIES IN COMMONWEALTH DURING THE YEARS 1911 TO 1916.

Year.	N.S.W.	Victoria.	Q'land.	S.A.	W.A.	Tas.	C'wealth.
	£	£	£	£	£	£	£
1911 ...	54,346,011	41,747,863	15,675,662	12,416,381	5,311,066	3,525,087	133,022,090
1912 ...	61,163,328	45,410,773	18,798,904	13,438,218	6,092,268	3,871,916	148,775,407
1913 ...	65,672,495	47,936,647	23,688,789	13,998,670	6,481,331	3,782,831	161,560,763
1914 ...	68,253,332*	49,439,985	25,491,955	13,215,970	6,381,512	3,667,754	166,450,508
1915 ...	68,253,332*	51,466,093	25,444,812	13,994,223	5,712,793	4,215,447	169,086,700
1916† ...	70,989,864	51,466,093	25,541,024	13,994,223	6,007,111	4,576,530	172,574,845

## PER EMPLOYEE.†

	£	£	£	£	£	£	£
1911 ...	500	373	422	445	336	342	427
1912 ...	529	391	459	472	372	369	454
1913 ...	545	404	559	491	375	387	479
1914 ...	585*	418	589	492	362	411	502
1915 ...	585*	452	605	549	390	501	527
1916† ...	610	452	639	549	474	547	545

## PER HEAD OF MEAN POPULATION.

1911 ...	32.70	31.62	25.52	30.19	18.52	18.52	29.62
1912 ...	35.22	33.48	29.77	31.87	20.21	20.20	32.03
1913 ...	36.32	34.41	36.30	32.29	20.64	19.30	33.67
1914 ...	36.67*	34.73	37.77	30.04	19.73	18.49	33.78
1915 ...	33.67*	36.07	37.04	31.85	17.72	21.15	34.21
1916† ...	37.95	36.07	37.69	31.85	19.09	23.09	34.97

\* Year ended 30th June, 1915.

† Including working proprietors.

‡ See note ‡ first table this section.

6. Value of Production of Manufacturing Industries.—The difference between the figures given in paragraph 5 and the corresponding figures in paragraph 4 represents the amount added to the value of the raw materials by the process of manufacture. This is the real measure of the value of production of manufacturing industries. The following table shews the value added in this manner in each State for the various classes of factories:—

**VALUE OF PRODUCTION OF MANUFACTURING INDUSTRIES IN COMMONWEALTH, 1916.**

Class of Industry.	N.S.W. 1915-16.	Victoria. 1915.	Q'land. 1916.	S.A. 1915.	W.A. 1916.	Tas. 1916.	Cwealth.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ...	977,625	897,719	505,924	169,406	56,910	45,268	2,652,852
II. Treating oils and fats, animal, vegetable, etc. ...	406,722	299,135	54,203	50,489	46,212	3,774	860,535
III. Processes in stone, clay, glass, etc. ...	1,443,398	859,691	109,123	237,228	81,045	30,368	2,760,853
IV. Working in wood ...	1,207,629	1,099,583	749,298	238,178	490,725	237,881	4,023,294
V. Metal works, machinery, etc. ...	7,664,145	3,570,093	1,232,785	2,166,003	540,595	967,964	16,141,585
VI. Connected with food and drink, etc. ...	4,557,791	3,856,980	4,181,226	802,840	613,967	411,521	14,424,325
VII. Clothing and textile fabrics, etc. ...	3,230,229	4,196,382	871,988	431,616	232,516	152,156	9,114,887
VIII. Books, paper, printing, and engraving ...	1,826,928	1,803,009	673,328	303,591	301,362	128,027	5,036,245
IX. Musical instruments, etc. ...	78,820	16,967	...	2,095	...	...	97,892
X. Arms and explosives ...	298,300	198,295	...	247	...	...	496,842
XI. Vehicles and fittings, saddlery and harness, etc. ...	684,068	668,828	204,213	187,322	87,693	57,918	1,890,041
XII. Ship and boat building and repairing ...	606,864	198,265	21,002	25,627	5,847	4,952	862,557
XIII. Furniture, bedding, and upholstery ...	553,181	405,759	186,745	108,207	63,224	45,637	1,362,753
XIV. Drugs, chemicals, and by-products ...	572,066	544,146	27,797	204,690	126,513	3,883	1,479,085
XV. Surgical and other scientific instruments ...	23,435	19,702	6,600	1,650	3,011	...	54,398
XVI. Jewellery, timepieces, and platedware ...	139,649	157,557	19,842	24,193	9,206	5,167	355,614
XVII. Heat, light, and power ...	2,179,201	1,448,206	529,044	295,435	292,559	134,927	4,879,372
XVIII. Leatherware, n.e.i. ...	106,826	107,135	21,092	3,326	3,325	...	241,704
XIX. Minor wares, n.e.i. ...	205,918	389,898	18,889	21,644	18,763	4,464	659,576
Total ...	26,762,785	20,737,350	9,413,098	5,273,787	2,973,473	2,233,907	67,394,400

The amount of the value added in each State is not in the same order as in the case of value of output, the four most important classes being V., VI., VII., and VIII., in the order named. The value added to raw material by process of manufacture and amount per employee and per head of mean population is shewn in the following statement for the years 1911 to 1916:—

**VALUE OF PRODUCTION OF MANUFACTURING INDUSTRIES IN COMMONWEALTH, 1911 to 1916.**

Year.	N.S.W.	Victoria.	Queensland.	S. Aust.	W. Aust.	Tas.	C'wealth.
VALUE.							
	£	£	£	£	£	£	£
1911 ...	20,675,060	16,718,338	6,887,327	4,912,402	3,251,740	1,573,847	54,017,714
1912 ...	24,040,887	18,408,471	7,719,950	5,239,108	3,506,073	1,585,298	60,499,787
1913 ...	25,135,019	19,470,948	9,505,250	5,644,412	3,698,492	1,699,165	65,153,286
1914 ...	25,693,962*	20,453,291	9,781,161	5,284,795	3,773,200	1,675,035	66,661,444
1915 ...	25,693,962*	20,737,350	9,505,229	5,273,787	3,078,093	2,022,197	66,310,618
1916†	26,762,785	20,737,350	9,413,098	5,273,787	2,973,473	2,233,907	67,394,400
PER EMPLOYEE.							
	£	£	£	£	£	£	£
1911 ...	190	149	185	176	206	153	173
1912 ...	208	159	189	184	214	159	185
1913 ...	209	164	224	198	214	174	193
1914 ...	220*	173	226	197	214	188	201
1915 ...	220*	182	226	207	210	240	207
1916†	230	182	235	207	235	267	213

\*. Year ended 30th June, 1915.

† See note ‡ first table this section.

**VALUE OF PRODUCTION OF MANUFACTURING INDUSTRIES IN  
COMMONWEALTH, 1911 TO 1916—Continued.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
PER HEAD OF MEAN POPULATION.							
1911 ...	£ 12.44	£ 12.66	£ 11.21	£ 11.95	£ 11.34	£ 8.26	£ 12.03
1912 ...	13.84	13.57	12.22	12.43	11.63	8.27	13.03
1913 ...	13.90	13.98	14.57	13.02	11.78	8.67	13.56
1914 ...	13.50*	14.37	14.49	12.01	11.67	8.44	13.53
1915 ...	13.80*	14.54	13.84	12.00	9.55	10.14	13.41
1916† ...	14.31	14.54	13.89	12.00	9.45	11.27	13.66

\* Year ended 30th June, 1915. † See note † first table this section.

As the total value of the output for the Commonwealth was estimated at £172,574,845, there remained, after payment of £105,180,445, the value of the raw materials used, of £33,828,840 for salaries and wages, and of £3,383,598 for fuel, the sum of £30,181,962 to provide for all other expenditure and profits. The following table gives corresponding particulars for each State, expressed absolutely, and as percentages of the total value of the output:—

**VALUE OF OUTPUT AND COST OF PRODUCTION IN COMMONWEALTH  
FACTORIES, 1916.**

State.	Raw Materials Used.	Fuel and Light.	Salaries and Wages.	All other Expenditure Interest, and Profits.	Total Value of Output.
VALUE AND COST, ETC.					
New South Wales, 1915-16...	£ 44,227,079	£ 1,528,220	£ 13,413,845	£ 11,820,720	£ 70,989,864
Victoria, 1915 ...	30,728,743	834,966	11,036,345	8,866,039	51,466,093
Queensland, 1916 ...	16,127,926	310,454	4,181,254	4,921,390	25,541,024
South Australia, 1915	8,720,436	399,731	2,705,130	2,168,926	13,994,223
Western Australia, 1916	3,033,638	193,523	1,656,799	1,123,151	6,007,111
Tasmania, 1916 ...	2,342,623	116,704	835,467	1,281,736	4,576,530
Commonwealth ...	105,180,445	3,383,598	33,828,840	30,181,962	172,574,845

**PERCENTAGE OF COSTS, ETC., ON TOTAL VALUE.**

	%	%	%	%	%
New South Wales, 1915-16...	62.30	2.15	18.90	16.65	100.00
Victoria, 1915 ...	59.71	1.62	21.44	17.23	100.00
Queensland, 1916 ...	63.15	1.22	16.37	19.26	100.00
South Australia, 1915	62.31	2.86	19.33	15.50	100.00
Western Australia, 1916	50.50	3.22	27.58	18.70	100.00
Tasmania, 1916 ...	51.19	2.55	18.26	28.00	100.00
Commonwealth ...	60.95	1.96	19.60	17.49	100.00

**§ 7. Land, Buildings, Plant and Machinery.**

1. **General.**—As an indication of the permanent character and stability of the industries which have been established in the Commonwealth, it may be noted that the values of land and buildings and of plant and machinery used in the factories are rapidly increasing. Thus, for the whole Commonwealth the total value of land and buildings and plant and machinery has increased from 1911 to 1916 by £20,685,100, i.e., from £63,906,846 to £84,591,946, or at the rate of £4,137,020 per annum.

The following statement shews the values of land and buildings and of plant and machinery used in connection with manufacturing industries in each State:—

**VALUE OF LAND, BUILDINGS, PLANT, AND MACHINERY IN CONNECTION WITH MANUFACTURING INDUSTRIES, 1916.**

Value of—	N.S.W. 1915-16.	Victoria. 1915.	Q'land. 1916.	S. Aust. 1915.	W. Aust. 1916.	Tas. 1916.	C'wlth.
	£	£	£	£	£	£	£
Land and buildings ...	17,770,517	11,450,123	5,014,824	3,072,784	2,247,505	1,130,602	40,696,355
Plant and machinery ...	18,211,104	11,068,949	7,543,873	2,990,702	2,817,863	1,263,100	43,895,591
<b>Total ...</b>	<b>35,981,621</b>	<b>22,529,072</b>	<b>12,558,697</b>	<b>6,063,486</b>	<b>5,065,368</b>	<b>2,393,702</b>	<b>84,591,946</b>

The total capital invested in land, buildings, plant and machinery in manufacturing industries in the Commonwealth during the year 1916 was approximately £84,591,946 (or £17 2s. 11d. per head of population); of that sum £40,696,355 was invested in land and buildings occupied as manufactories, the remaining £43,895,591 being the value of the plant and machinery used in connection therewith.

**2. Value of Land and Buildings.**—The value of the land and buildings occupied in connection with manufacturing industries may be conveniently classified according to the nature of the industry conducted therein.

(i.) *Total Value in Commonwealth, 1911 to 1916.* The following table shews for the whole Commonwealth the approximate values of land and buildings occupied in connection with manufacturing industries of various classes during each year from 1911 to 1916 inclusive:—

**VALUE OF LAND AND BUILDINGS OCCUPIED AS FACTORIES IN COMMONWEALTH, 1911 to 1916.**

Class of Industry.	1911.	1912.	1913.	1914.	1915.	1916.
	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ...	978,978	1,004,221	1,014,763	1,063,549	1,069,890	1,002,686
II. Treating oils and fats, animal, vegetable, etc. ...	445,499	449,453	452,415	466,373	465,757	518,932
III. Processes in stone, clay, glass, etc. ...	1,228,889	1,382,062	1,593,769	1,679,050	1,666,097	1,620,520
IV. Working in wood ...	1,668,045	1,923,963	2,184,257	2,244,905	2,146,909	2,036,786
V. Metal works, machinery, etc. ...	5,000,274	5,437,718	5,846,225	6,242,968	6,370,355	6,583,452
VI. Connected with food & drink, etc. ...	8,167,496	8,259,066	8,656,547	9,800,457	9,852,479	10,508,926
VII. Clothing and textile fabrics, etc. ...	4,601,924	4,928,474	5,188,631	5,270,374	5,244,627	5,239,362
VIII. Books, paper, printing, and engraving ...	2,964,466	3,150,049	3,388,072	3,521,164	3,546,017	3,824,069
IX. Musical instruments, etc. ...	82,168	85,731	88,136	83,375	83,430	82,695
X. Arms and explosives ...	41,462	112,300	184,772	179,723	194,149	212,267
XI. Vehicles and fittings, saddlery and harness, etc. ...	1,453,077	1,654,488	1,835,221	1,824,018	1,825,999	1,822,565
XII. Ship & boat building & repairing ...	1,163,299	1,261,647	1,113,243	1,127,521	1,134,530	1,126,754
XIII. Furniture, bedding & upholstery ...	593,408	1,043,680	1,149,120	1,117,699	1,094,646	1,075,547
XIV. Drugs, chemicals & by-products ...	760,441	823,429	831,892	929,933	955,995	1,013,577
XV. Surgical and other scientific instruments ...	61,703	59,308	70,968	64,263	67,021	70,536
XVI. Jewellery, timepieces, & plated-ware ...	300,717	344,306	353,900	345,018	344,452	325,126
XVII. Heat, light, and power ...	2,320,348	2,511,317	2,517,179	2,717,502	2,775,148	3,150,513
XVIII. Leatherware, n.e.i. ...	111,506	120,646	133,283	132,777	137,666	137,391
XIX. Minor wares, n.e.i. ...	250,550	257,298	270,307	317,417	343,529	344,651
<b>Total ...</b>	<b>32,494,250</b>	<b>34,809,156</b>	<b>36,872,720</b>	<b>39,128,176</b>	<b>39,318,696</b>	<b>40,696,355</b>

As shewn in the above table, the total net increase during the five years was £3,202,105, or an annual average of £1,640,421. The largest increases were in Classes VI., V., and VIII., and amounted to £2,341,430, £1,583,178, and £859,603 respectively.

(ii.) *Value in each State.* The following table gives similar information for each State up to latest date :—

**VALUE OF LAND AND BUILDINGS OCCUPIED AS FACTORIES IN EACH STATE, 1916.**

Class of Industry.	N.S.W. 1915-16.	Victoria. 1915.	Q'land. 1916.	S.A. 1915.	W.A. 1916.	Tas. 1916.	C'w'lth.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ...	387,749	400,018	70,568	92,180	37,769	14,403	1,002,686
II. Treating oils and fats, animal, vegetable, etc. ...	291,466	112,714	28,458	66,629	15,440	4,225	518,932
III. Processes in stone, clay, glass, etc. ...	894,428	459,673	66,700	113,171	59,363	27,185	1,620,520
IV. Working in wood... ..	943,987	394,487	225,660	153,019	242,068	77,555	2,036,786
V. Metal works, machinery, etc. ...	3,162,194	1,536,579	658,692	567,849	598,938	59,150	6,583,452
VI. Connected with food and drink, etc. ...	3,557,208	2,720,587	2,435,943	747,649	442,682	604,857	10,508,926
VII. Clothing and textile fabrics, etc. ...	2,175,606	2,012,234	441,911	286,294	197,884	125,433	5,239,362
VIII. Books, paper, printing and engraving ...	1,731,074	975,545	486,228	334,840	246,707	49,575	3,824,069
IX. Musical instruments, etc. ...	56,600	24,395	...	1,700	...	...	83,635
X. Arms and explosives ...	89,044	119,723	...	3,500	...	...	212,267
XI. Vehicles and fittings, saddlery and harness, etc....	705,395	559,343	179,192	200,886	109,694	68,055	1,822,565
XII. Ship and boat building and repairing ...	825,833	220,383	10,093	60,705	4,815	4,925	1,126,754
XIII. Furniture, bedding and upholstery ...	464,985	327,387	111,839	75,494	69,595	26,247	1,075,547
XIV. Drugs, chemicals, and by-products ...	408,779	342,723	10,860	160,755	84,060	6,400	1,013,577
XV. Surgical and other scientific instruments ...	34,115	20,151	8,004	2,416	5,850	...	70,536
XVI. Jewellery, timepieces, and platedware ...	124,695	130,935	23,091	21,045	19,105	13,255	325,126
XVII. Heat, light, and power ...	1,705,435	902,573	232,395	164,147	99,886	46,078	3,150,513
XVIII. Leatherware, n.e.i. ...	62,586	58,115	10,600	2,190	3,900	...	137,391
XIX. Minor wares, n.e.i. ...	149,338	142,559	14,590	18,315	16,699	3,150	344,651
Total ... ..	17,770,517	11,460,123	5,014,824	3,072,784	2,247,505	1,130,602	40,696,355

The maximum value for the Commonwealth of land and buildings in any particular class was in Class VI., amounting to £10,508,926, or 25.82 per cent. on the total value. The next in order of importance were Classes V., VII., VIII., and XVII., in which the values were £6,583,452, £5,239,362, £3,824,069, and £3,150,513 respectively. The sum of the values for the five classes mentioned amounted to £29,306,322, or 72.01 per cent. on the total value for all classes.

(iii.) *Total Value in each State, 1911 to 1916.* The following table shews the total value of land and buildings occupied as manufactories in each State at the end of each year from 1911 to 1916 inclusive :—

**TOTAL VALUE OF LAND AND BUILDINGS OCCUPIED AS FACTORIES  
IN EACH STATE, 1911 to 1916.**

Year.	N.S.W.	Victoria.	Queensland.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	£	£	£	£	£	£	£
1911...	13,474,455	9,921,520	3,277,776	2,950,170	1,819,342	1,050,987	32,494,250
1912...	14,765,810	10,362,661	3,524,991	3,150,834	1,910,372	1,094,488	34,809,156
1913...	15,792,105	10,753,309	3,923,584	3,261,242	2,036,769	1,105,711	36,872,720
1914...	16,843,698*	11,248,120	4,434,336	3,047,791	2,409,517	1,144,714	39,128,176
1915...	16,843,698*	11,460,123	4,446,405	3,072,784	2,363,262	1,132,424	39,318,696
1916†	17,770,517	11,460,123	5,014,824	3,072,784	2,247,505	1,130,602	40,696,355

\* Year ended 30th June, 1915.

† See note † first table this section.

It will be seen that since 1911 there has been a general increase throughout the Commonwealth. The States shewing the largest growth were New South Wales, with an average increase per annum for four and a-half years of £954,682, Victoria for four years £384,651, and Queensland with an average of £347,410 for five years.

3. Value of Plant and Machinery.—(i.) *Total Value in Commonwealth, 1911 to 1916.* The following table shews for the whole Commonwealth the approximate value of plant and machinery used in factories during each year from 1911 to 1916 inclusive:—

**VALUE OF PLANT AND MACHINERY USED IN FACTORIES IN COMMONWEALTH, 1911 to 1916.**

Class of Industry.	1911.	1912.	1913.	1914.	1915.	1916.
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ...	£ 877,820	£ 926,966	£ 985,619	£ 974,556	£ 971,841	£ 965,932
II. Treating oils and fats, animal, vegetable, etc. ...	435,315	417,231	444,502	469,680	545,796	576,877
III. Processes in stone, clay, glass, etc. ...	1,299,774	1,491,383	1,717,544	1,869,446	1,900,086	1,866,993
IV. Working in wood ...	2,207,703	2,455,436	2,664,508	2,737,527	2,611,407	2,806,553
V. Metal works, machinery, etc. ...	5,722,956	6,308,356	6,879,461	7,630,150	7,651,160	8,494,093
VI. Connected with food and drink, etc. ...	8,570,565	9,029,735	9,650,298	10,782,825	10,914,862	11,654,182
VII. Clothing and textile fabrics, etc. ...	1,538,062	1,620,437	1,746,713	1,774,910	1,798,554	1,846,758
VIII. Books, paper, printing, and engraving ...	2,481,999	2,628,039	2,814,226	2,974,120	2,987,190	3,054,941
IX. Musical instruments, etc. ...	17,924	20,960	22,630	19,030	19,119	21,191
X. Arms and explosives ...	56,255	158,823	190,060	216,581	228,031	228,210
XI. Vehicles and fittings, saddlery and harness, etc. ...	283,470	329,933	374,371	395,463	411,295	421,416
XII. Ship and boat building, and repairing ...	478,012	597,783	725,934	764,782	768,159	511,237
XIII. Furniture, bedding, and upholstery ...	177,924	207,211	235,068	238,547	244,796	251,822
XIV. Drugs, chemicals, & by-products ...	602,276	629,402	650,185	832,686	916,136	868,126
XV. Surgical and other scientific instruments ...	11,158	11,615	13,121	13,758	13,955	13,873
XVI. Jewellery, timepieces, and platedware ...	61,765	61,791	68,186	69,724	72,988	74,617
XVII. Heat, light, and power ...	6,425,157	7,135,997	7,590,198	9,044,847	9,532,800	9,970,117
XVIII. Leatherware, n.e.i. ...	25,565	27,695	28,035	30,576	31,706	34,240
XIX. Minor wares, n.e.i. ...	138,896	145,141	166,172	199,343	226,285	234,313
Total ...	31,412,596	34,203,934	36,936,831	41,038,551	41,846,166	43,895,591

It will be seen that during the period in question there has been a steady and substantial net increase amounting in all to £12,482,995, or an annual average of £2,496,599. Development has occurred in all classes of industry, the largest increase being in Class XVII., "Heat, Light, and Power," where it amounted to £3,544,960, while the two next largest were in Class VI., "Connected with Food and Drink, etc.," with an increase of £3,083,617, and Class V., "Metal Works, Machinery, etc.," £2,771,137.

(ii.) *Total Value in each State, 1911 to 1916.* The figures which were given in the above table referred to the Commonwealth as a whole. In the following table they are shewn for each State, and it will be seen that the increase referred to above is general throughout the States. New South Wales shews by far the largest increase, viz., £5,700,504; while Victoria comes next with £2,732,576.

**VALUE OF PLANT AND MACHINERY IN FACTORIES, 1911 to 1916.**

Year.	N.S.W.	Victoria.	Queensland.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	£	£	£	£	£	£	£
1911	12,510,600	8,336,373	4,947,259	2,319,387	2,082,777	1,216,200	31,412,596
1912	13,795,195	9,095,134	5,442,471	2,468,579	2,241,536	1,161,019	34,203,934
1913	14,861,676	10,022,429	5,877,387	2,662,196	2,264,455	1,248,688	36,936,831
1914	16,866,982*	10,727,526	6,898,673	2,869,199	2,484,793	1,191,378	41,038,551
1915	16,866,982*	11,068,949	7,051,113	2,990,702	2,640,168	1,228,252	41,846,166
1916†	18,211,104	11,068,949	7,543,873	2,990,702	2,817,863	1,263,100	43,895,591

\* Year ended 30th June, 1915.

† See note † first table this section.

(iii.) *Classified Value in each State.* The following table shews the value of plant and machinery used in factories in each State, classified according to the nature of the industry in which used:—

## VALUE OF PLANT AND MACHINERY USED IN FACTORIES IN EACH STATE, 1916.

Class of Industry.	N.S.W. 1915-16.	Victoria. 1915.	Q'land. 1916.	S. Aust. 1915.	W. Aust. 1916.	Tas. 1916.	C'wlth.
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ...	£ 397,382	£ 318,759	£ 119,164	£ 63,646	£ 23,300	£ 43,681	£ 965,932
II. Treating oils and fats, animal, vegetable, etc. ...	345,704	138,662	42,794	27,105	22,046	566	576,877
III. Processes in stone, clay, glass, etc. ...	1,098,225	439,356	80,823	163,853	66,925	17,811	1,966,993
IV. Working in wood ...	817,519	510,831	465,104	84,223	751,943	177,033	2,806,653
V. Metal wks., machinery, etc. ...	4,956,818	1,560,541	627,147	561,090	597,762	190,735	8,494,093
VI. Connected with food and drink, etc. ...	3,604,699	2,263,565	4,579,428	604,388	436,712	165,390	11,654,182
VII. Clothing and textile fabrics, etc. ...	626,422	890,009	141,871	100,690	35,654	52,112	1,846,758
VIII. Books, paper, printing, and engraving ...	1,277,002	1,010,984	317,583	225,598	161,873	61,901	3,054,941
IX. Musical instruments, etc. ...	13,866	6,725	...	600	...	...	21,191
X. Arms and explosives ...	100,551	127,259	...	400	...	...	228,210
XI. Vehicles and fittings, saddlery and harness, etc. ...	149,952	140,286	41,490	54,485	21,347	13,856	421,416
XII. Ship and boat building and repairing ...	398,881	84,765	7,915	11,240	1,285	7,151	511,237
XIII. Furniture, bedding, and upholstery ...	75,510	77,545	43,284	30,973	14,666	9,344	251,822
XIV. Drugs, chemicals, and by-products ...	238,743	272,545	6,202	177,253	172,638	745	868,126
XV. Surgical and other scientific instruments ...	5,099	4,731	1,838	850	1,355	...	13,873
XVI. Jewellery, timepieces, and platedware ...	30,175	31,461	4,109	5,230	1,747	1,895	74,617
XVII. Heat, light, and power ...	3,968,033	3,041,942	1,059,588	876,140	504,474	519,940	9,970,117
XVIII. Leatherware, n.e.i. ...	14,718	14,672	3,619	317	914	...	34,240
XIX. Minor wares, n.e.i. ...	91,805	134,311	1,914	2,621	3,222	440	234,313
Total ...	18,211,104	11,068,949	7,543,873	2,990,702	2,817,863	1,263,100	43,895,591

The greatest value for any particular class of industry is for Class VI., "Connected with Food and Drink, etc.," and amounts to £11,654,182, or 26.55 per cent. on the total for all classes. The next in order of importance is Class XVII., "Heat, Light, and Power," which amounts to £9,970,117, or 22.71 per cent. on the total; followed by Class V., "Metal Works, Machinery, etc.," amounting to £8,494,093, or 19.35 per cent. on the total value. The total for these three classes amounts to £30,118,392, or 68.61 per cent. on the total value for all classes.

## § 8. Individual Industries.

1. **General.**—The preceding remarks and tables furnish a general view of the recent development of particular classes of industries in Australia treated under the nineteen categories referred to in § 1. 3 hereof. In order to make the information complete, it is necessary to furnish details of the development of individual industries. While it is not possible, within the limits of this article, to give a full and detailed account of all the manufacturing industries of the Commonwealth, it is proposed to deal herein with such particular industries as are of special importance by reason of the number of persons employed, the number of factories, the amount of capital invested therein, the value of the production, or other features of special interest. In cases where there are only one or two establishments of a particular class in any State, returns relative to output are not published, in order to avoid disclosing information as to the operations of individual factories.

2. **Tanning Industry.**—(i.) In Class I. (see § 1. 3 hereof) the most important industry is tanning. Until recent years, the production of tanneries in Australia was confined to the coarser class of leathers, but lately the tanning of the finer skins has been undertaken with satisfactory results. The present position of the industry in the several States is as follows:—

## TANNERIES, 1916.

Items.	N.S.W. 1915-16.	Vic. 1915.	Q'land. 1916.	S.A. 1915.	W.A. 1916.	Tas. 1916.	C'with.
Number of factories ... ..	76	52	18	12	3	2	163
" employees ... ..	1,060	1,720	209	206	51	57	3,303
Actual horse-power of engines employed...	1,397	1,883	399	275	105	86	4,145
Approx. value of lands and buildings ...	£ 137,376	185,753	17,576	26,233	14,889	5,879	287,706
Approx. value of plant and machinery ...	£ 92,701	133,043	21,354	14,163	10,750	8,945	285,956
Total amount of wages paid during year ...	£ 135,464	219,596	25,193	25,533	7,408	7,820	423,014
Value of fuel used ... ..	£ 8,877	13,701	1,413	1,864	749	688	27,292
Value of raw material worked up ... ..	£ 1,144,103	1,606,586	246,908	150,811	72,998	62,381	3,283,787
Total value of output ... ..	£ 1,433,637	2,106,358	325,548	204,617	90,127	73,140	4,233,427
Value added in process of manufacture ...	£ 289,534	499,772	78,640	53,806	17,129	10,759	949,640

(ii.) *Raw Materials used in Tanneries.* The quantity of raw materials used in tanneries in each State is shewn in the following table:—

## RAW MATERIALS USED IN TANNERIES, 1916.

Particulars.	N.S.W. 1915-16.	Vic. 1915.	Q'land. 1916.	S. Aust. 1915.	W. Aust. 1916.	Tas. 1916.	C'wealth.
Hides & calf skins ... No.	567,190	931,285	105,311	89,045	27,405	22,712	1,742,948
Sheep pelts ... ..	3,504,375	907,653	68,345	68,476	...	61,345	4,610,194
Other skins ... ..	283,337	242,796	127,517	17,751	9,722	...	681,123
Bark ... .. Tons	10,915	14,600	2,395	1,489	640	310	30,349

(iii.) *Progress of Tanning Industries, 1911 to 1916.* The development of the tanning industry during the period 1911 to 1916 is shewn in the following table:—

## DEVELOPMENT OF TANNING INDUSTRY IN THE COMMONWEALTH, 1911 to 1916.

Items.	1911.	1912.	1913.	1914.*	1915.	1916.
Number of factories ... ..	176	174	164	166	165	163
Number of employees ... ..	3,247	3,071	2,892	3,091	3,376	3,303
Actual horse-power of engines used ...	3,168	3,274	3,745	3,803	3,899	4,145
Approx. value of land and buildings ...	£ 343,914	366,898	366,696	392,420	389,024	387,706
Approx. value of plant and machinery ...	£ 241,245	250,495	276,610	283,499	287,856	285,956
Total amount of wages paid ... ..	£ 332,206	328,060	322,747	366,484	418,363	423,014
Value of fuel used ... ..	£ 21,711	21,341	19,642	22,573	26,140	27,292
Value of raw materials worked up ... ..	£ 2,099,034	2,216,705	2,428,003	2,732,525	3,188,817	3,283,787
Value of final output ... ..	£ 2,698,250	2,834,007	3,030,785	3,468,475	4,088,140	4,233,427
Value added in process of manufacture ...	£ 599,216	617,302	602,782	735,950	899,323	949,640

\* Including three bone milling establishments in Western Australia.

It will be seen from the above table that as regards the number of factories and of hands employed, the figures during the last five years have been almost stationary. The approximate amount of permanently invested capital, however, shews a very substantial increase, amounting to 12.73 per cent. in the value of land and buildings, and 18.53 per cent. in that of plant and machinery. The amount of wages paid, value of materials used, and of final output, shew the large increases of 27.03, 56.44 and 56.90 per cent. respectively during the same period.

3. *Fellmongering and Wool-scouring.*—(i.) The next industry in importance in Class I. is that of fellmongering and wool-scouring, one of the earliest industries established in Australia. The following table gives particulars of the industry in each State:—



## FELLMONGERING AND WOOL-SCOURING, 1916.

Items.	N.S.W. 1915-16.	Vic. 1915.	Qld. 1916.	S.A. 1915.	W.A. 1916.	Tas. 1916.	C'with.
Number of factories ... ..	49	30	18	3	...	...	100
Number of employees ... ..	1,474	445	389	71	...	...	2,379
Actual horse-power of engines used ...	3,007	627	736	93	...	...	4,463
Approx. value of land and buildings £	145,862	69,225	43,953	4,490	...	...	263,530
Approx. value of plant and machinery £	187,850	55,307	86,124	4,850	...	...	334,131
Total amount of wages paid ... ..	£ 174,259	49,288	48,363	7,218	...	...	279,128
Value of fuel used ... ..	£ 26,028	8,115	9,961	810	...	...	44,914
Value of raw material worked up ...	£ 3,224,833	939,524	1,580,739	158,053	...	...	5,903,149
Value of final output ... ..	£ 3,704,179	1,095,097	1,995,673	194,173	...	...	6,989,122
Value added in process of manufacture £	479,346	155,573	414,934	36,120	...	...	1,085,973

(ii.) *Development of Fellmongering and Wool-scouring, 1911 to 1916.*—The following return furnishes particulars of fellmongering and wool-scouring establishments in the Commonwealth for the last six years:—

## DEVELOPMENT OF FELLMONGERING AND WOOL-SCOURING IN THE COMMONWEALTH, 1911 to 1916.

Items.	1911.	1912.	1913.	1914.	1915.	1916.
Number of factories ... ..	112	120	119	108	106	100
Number of employees ... ..	2,590	2,544	2,375	2,298	2,337	2,379
Actual horse-power of engines used ...	3,230	3,831	3,966	3,772	3,754	4,463
Approx. value of land and buildings £	273,281	267,188	269,895	256,330	266,440	263,530
Approx. value of plant and machinery £	308,211	348,970	346,381	330,047	329,780	334,131
Total amount of wages paid ... ..	£ 208,627	209,352	230,445	226,509	245,362	279,128
Value of fuel used ... ..	£ 21,581	31,445	33,404	36,658	40,834	44,914
Value of raw materials worked up ...	£ 3,757,750	3,869,200	4,365,413	4,238,705	5,223,231	5,903,149
Value of final output ... ..	£ 4,343,690	4,444,938	4,940,410	4,742,531	5,919,690	6,989,122
Value added in process of manufacture £	585,940	585,738	574,997	503,826	696,459	1,085,973

A slight decline has taken place in this industry during the last five years as regards the number of establishments and of employees. On the other hand, the amount paid in wages, the value of materials used, and of the final output, all shew substantial increases amounting to 33.8 per cent., 57.1 per cent., and 60.9 per cent. respectively.

4. **Soap and Candle Factories.**—(i.) In Class II. (see § 1. 3 hereof) the manufactures of soap and candles are the most important industries. These two manufactures are frequently carried on in the same establishments, so that separate returns cannot be obtained; it may, however, be said generally that the manufacture of soap is the more important of the two. The following table gives particulars of soap and candle factories in each State during the year 1916:—

## SOAP AND CANDLE FACTORIES, 1916.

Items.	N.S.W. 1915-16.	Vic. 1915.	Qld. 1916.	S.A. 1915.	W.A. 1916.	Tas. 1916.	C'with.
Number of factories ... ..	30	17	15	5	4	1	72
Number of employees ... ..	896	639	157	200	153	24	2,009
Actual horse-power of engines employed ...	585	464	156	177	85	10	1,477
Approximate value of land and buildings £	191,104	96,770	28,458	55,682	15,440	4,165	391,619
Approximate value of plant and machinery £	237,507	121,946	42,794	22,166	22,046	546	447,005
Total amount of wages paid during year £	82,543	71,282	16,664	24,715	21,244	2,950	219,398
Value of fuel used ... ..	£ 15,577	12,587	2,545	6,343	1,168	328	38,548
Value of raw material worked up ... ..	£ 539,894	457,900	75,588	190,021	106,315	9,387	1,318,106
Total value of output ... ..	£ 771,099	721,845	129,791	177,472	152,527	13,147	1,965,881
Value added in process of manufacture £	232,205	269,945	54,203	47,451	46,212	3,760	647,776

(ii.) *Development of Soap and Candle Factories, 1911 to 1916.* The following table gives similar particulars for the last six years as regards the Commonwealth as a whole:—

### DEVELOPMENT OF SOAP AND CANDLE FACTORIES IN THE COMMONWEALTH, 1911 to 1916.

Items.	1911.	1912.	1913.	1914.	1915.	1916.
Number of factories... ..	81	77	74	75	75	72
employees ... ..	1,668	1,776	1,755	1,801	2,141	2,009
Actual horse-power of engines used...	1,266	1,274	1,314	1,434	1,420	1,477
Approximate value of land and buildings £	347,824	360,572	360,783	374,418	374,886	391,619
plant and machinery £	326,273	348,365	364,357	385,744	460,519	447,005
Total amount of wages paid...	£ 148,592	162,551	172,247	190,349	219,865	219,398
Value of fuel used ... ..	£ 31,701	30,896	31,692	33,949	36,101	38,548
of raw material worked up ... ..	£ 1,018,757	1,030,770	1,067,001	1,117,140	1,285,950	1,318,105
of final output ... ..	£ 1,588,416	1,614,898	1,644,188	1,756,938	1,971,513	1,965,881
added in process of manufacture £	569,659	584,128	577,187	639,798	685,563	647,776

\* Including three bark milling establishments in Western Australia in 1914, and three oil establishments in 1915.

(iii.) *Production of Soap and Candles, 1911 to 1916.* The subjoined statement shows that, taking the Commonwealth as a whole, there has been a considerable increase in the output of soap during the past five years.

### PRODUCTION OF SOAP AND CANDLES IN THE COMMONWEALTH, 1911 to 1916.

Particulars.	1911.	1912.	1913.	1914.	1915.	1916.
Soap ... .. cwt.	639,458	688,722	700,878	697,807	729,984	727,349
Candles ... .. „	130,122	130,785	129,877	110,734	104,986	102,775

\* Exclusive of Western Australia, for which State particulars are not available for publication.

(iv.) *Raw Materials Used, 1911 to 1916.* The following statement shows the quantity of certain raw materials used in soap and candle factories in the Commonwealth during the years 1911 to 1916 :—

### RAW MATERIALS USED IN SOAP AND CANDLE FACTORIES, 1911 to 1916.

Particulars.	1911.	1912.	1913.	1914.	1915.	1916.
Tallow ... .. cwt.	356,471	411,701	391,133	410,235	439,402	416,649
Alkali ... .. „	133,675	135,643	135,231	158,624	159,344	154,348
Cocoonut oil ... .. gal.	505,612	489,329	457,693	460,561	485,851	630,298

\* Exclusive of Western Australia, for which State figures are not available for publication.

5. *Saw Mills, etc.*—The most important industry in Class IV. is that of saw-milling. As separate particulars of forest saw mills are not available for some of the States, both forest and other saw mills, as well as joinery, moulding, and box factories have been combined in the following table:—

### SAW MILLS, FOREST AND OTHER, JOINERY, Etc., 1916.

Items.	N.S.W. 1915-16.	Vic. 1915.	Q'land. 1916.	S.A. 1915.	W.A. 1916.	Tas. 1916.	C'w'th.
Number of factories ... ..	590	360	288	87	66	135	1,526
employees ... ..	6,989	5,828	4,355	1,213	2,205	1,583	22,173
Actual horse-power of engines employed	17,990	9,640	8,909	1,600	5,197	2,120	44,456
Approx. value of land and buildings £	829,367	341,623	214,829	143,800	242,068	74,125	1,845,812
plant and machinery £	749,321	480,843	458,337	77,445	751,943	175,243	2,693,133
Total amount of wages paid during year £	782,228	658,931	467,031	133,195	346,729	164,083	2,552,197
Value of fuel used ... ..	£ 22,146	14,496	7,695	3,636	2,392	1,908	52,273
Value of raw material worked up ... ..	£ 2,020,992	1,045,278	723,080	501,992	87,800	108,059	4,487,201
Total value of output ... ..	£ 3,128,678	2,061,595	1,457,939	726,734	578,525	343,639	8,297,110
Value added in process of manufacture £	1,107,686	1,016,317	734,869	224,742	490,725	235,580	3,809,909

The development of forest and other saw mills, etc., since 1911, is shewn in the following table:—

**DEVELOPMENT OF SAW MILLS, FOREST AND OTHER, JOINERY, Etc., IN THE COMMONWEALTH, FROM 1911 to 1916.**

Items.	1911.	1912.	1913.	1914.	1915.	1916.
Number of establishments ...	1,494	1,609	1,670	1,623	1,567	1,526
" employees ...	26,785	29,358	30,371	28,894	24,847	22,173
Actual horse-power of engines used...	34,540	40,256	45,684	47,341	46,479	44,456
Approximate value of land and buildings	£ 1,532,620	1,754,241	2,008,035	2,063,437	1,969,758	1,845,812
" of plant and machinery	£ 2,141,883	2,365,462	2,571,701	2,632,465	2,502,325	2,493,132
Total amount of wages paid...	£ 2,749,209	3,211,625	3,383,907	3,401,045	2,780,990	2,552,197
Value of fuel used ...	£ 37,308	43,913	51,436	50,650	51,276	52,273
" of raw material worked up ...	£ 4,208,333	4,900,612	5,273,688	5,012,211	4,602,863	4,487,201
" of final output ...	£ 8,535,800	9,882,810	10,411,923	10,100,686	8,892,082	8,297,110
" added in process of manufacture	£ 4,327,467	4,982,198	5,168,235	5,088,475	4,289,219	3,809,909

The great development in the building and other trades in Australia during the years immediately preceding the war is reflected in the very satisfactory progress of the timber industries, in which there were large increases in wages paid, value of materials used, and final output, as well as in capital invested in land and buildings, and plant and machinery. For the past three years, however, there was, as might have been expected, a fairly considerable decline on the returns for 1913.

**6. Agricultural Implement Factories.**—The manufacture of agricultural implements is an important industry in Australia, and is of particular interest owing to the fact that it is one of the first industries to which the so-called "New Protection" system was sought to be applied (see Section XXVII. hereof). The nature of the articles manufactured may be gathered from the machines scheduled in the Customs tariff, 1906-7, which includes stripper harvesters, strippers, stump-jump ploughs, disc cultivators, winnowers, corn-shellers and baggers, drills, and other implements usually employed in agriculture. The stripper-harvester, which combines the stripper with a mechanism for winnowing and bagging grain, is an Australian invention, and is exported to many countries.

The following table gives particulars of the agricultural implement works of Australia for the year 1916:—

**AGRICULTURAL IMPLEMENT WORKS, 1916.**

Items.	N.S.W. 1915-16.	Victoria 1915.	Q'land. 1916.	S.Aust. 1915.	W.A. 1916.	Tas. 1916.	C'w'lth.
Number of factories ...	23	64	6	54	3	1	151
" employees ...	597	1,678	86	912	261	4	3,538
Actual horse-power of engines employed	327	1,372	97	881	131	3	2,811
Approx. value of land and buildings	£ 92,888	159,942	6,020	67,093	29,065	100	355,108
" plant and machinery	£ 33,905	188,492	7,128	79,585	26,937	350	336,397
Total amount of wages paid during year	£ 70,979	206,764	7,691	97,852	42,389	191	425,866
Value of fuel used ...	£ 2,653	15,337	597	6,142	4,318	20	29,067
Value of raw material worked up	£ 355,144	213,257	10,653	109,276	68,626	275	757,231
Total value of output ...	£ 496,514	526,756	22,030	258,911	152,727	707	1,457,645
Value added in process of manufacture	£ 141,370	313,499	11,377	149,635	84,101	432	700,414

The following table shews the conditions of this industry during the years 1911 to 1916 to have been somewhat fluctuating. A general decline took place during 1914 and 1915, attributable to various causes, the recent drought and a reduction in the exports to other countries being the principal contributing factors. The 1916 figures, however, shew more satisfactory results, being an advance on either of the two previous years as regards material worked up and output:—

**DEVELOPMENT OF AGRICULTURAL IMPLEMENT WORKS IN THE COMMONWEALTH,  
FROM 1911 to 1916.**

Items.	1911.	1912.	1913.	1914.	1915.	1916.
Number of factories ... ..	155	159	154	154	153	151
Number of employees ... ..	5,156	4,733	4,444	3,865	3,606	3,538
Actual horse-power of engines used ... ..	2,347	2,419	2,698	2,665	2,905	2,811
Approx. value of land and buildings ... ..	£ 284,469	331,348	348,666	360,916	363,166	355,108
Approx. value of plant and machinery ... ..	£ 245,025	281,923	309,015	324,292	337,459	336,397
Total amount of wages paid ... ..	£ 550,922	527,406	502,244	466,686	428,370	425,866
Value of fuel used ... ..	£ 32,342	30,961	30,408	29,892	29,167	29,067
Value of raw material worked up ... ..	£ 811,322	751,596	824,556	749,153	664,412	757,231
Value of final output ... ..	£ 1,656,364	1,538,421	1,536,378	1,413,789	1,299,308	1,457,645
Value added in process of manufacture ... ..	£ 845,042	786,825	711,822	664,636	634,896	700,414

**7. Engineering, Ironworks, and Foundries.**—The classification in these industries is not very satisfactory. Generally, engineering shops, ironworks, and foundries are included, as also are factories for making nails, safes, patterns, meters, and springs. Railway workshops, agricultural implement factories, cyanide, smelting, pyrites, and metallurgical works, galvanised iron, stoves and ovens, and wire working establishments are not included. The combination of industries is rendered necessary owing to the limited classification still adopted by some of the States.

**ENGINEERING, IRONWORKS, AND FOUNDRIES, 1916.**

Items.	N.S.W. 1915-16.	Vic. 1915.	Q'land. 1916.	S.A. 1915.	W.A. 1916.	Tas. 1916.	C'w'lth. .
Number of factories ... ..	316	397	90	64	67	22	956
Number of employees ... ..	11,202	8,999	2,388	1,739	986	404	25,718
Actual horse-power of engines employed ... ..	25,907	8,744	1,980	1,406	1,286	335	39,658
Approx. value of land and buildings ... ..	£ 1,291,200	655,613	187,604	126,550	126,007	37,785	2,424,759
Approx. value of plant and machinery ... ..	£ 3,280,219	846,337	216,779	149,388	118,040	44,899	3,655,662
Total amount of wages paid during year ... ..	£ 1,656,521	1,105,930	313,240	207,132	139,666	45,771	3,468,260
Value of fuel used ... ..	£ 262,560	110,353	14,400	17,854	12,117	2,855	420,139
Value of raw materials worked up ... ..	£ 2,418,060	1,447,547	299,730	294,285	213,119	45,775	4,718,516
Total value of output ... ..	£ 5,072,153	3,221,994	788,450	598,853	413,426	110,543	10,205,424
Value added in process of manufacture ... ..	£ 2,654,093	1,774,447	488,720	304,573	200,307	64,768	5,486,908

In addition to engineering works which supply ordinary requirements, there is now a number of large and important establishments which engage in the manufacture of special classes of machinery and implements. The manufacture of mining and smelting machinery and apparatus forms an important section of this industry.

The development of engineering, ironworks, and foundries in the Commonwealth since 1911 is shown in the following table:—

**DEVELOPMENT OF ENGINEERING, IRONWORKS, AND FOUNDRIES, FROM  
1911 to 1916.**

Items.	1911.	1912.	1913.	1914.	1915.	1916.
Number of factories ... ..	820	877	919	950	950	956
Number of employees ... ..	22,539	25,151	26,014	25,766	25,219	25,718
Actual horse-power of engines used ... ..	16,015	18,744	20,630	33,630	34,049	39,658
Approx. value of land and buildings ... ..	£ 1,579,925	1,792,169	1,980,453	2,264,889	2,315,984	2,424,759
Approx. value of plant and machinery ... ..	£ 1,706,405	1,953,478	2,188,935	2,946,347	2,988,650	3,655,662
Total amount of wages paid ... ..	£ 3,342,603	2,846,180	3,044,263	3,143,920	3,134,873	3,468,260
Value of fuel used ... ..	£ 178,546	195,729	217,173	357,071	369,170	420,139
Value of raw material worked up ... ..	£ 2,832,181	3,536,179	3,719,643	3,960,252	4,005,914	4,718,516
Value of final output ... ..	£ 6,614,535	7,930,060	8,315,320	8,881,777	8,944,601	10,205,424
Value added in process of manufacture ... ..	£ 3,782,354	4,393,581	4,595,677	4,921,525	4,938,687	5,486,908

The progress in these industries during late years has been very rapid. Since 1911 the number of establishments has increased over 16½ per cent., the number of hands employed 14 per cent., the amount of wages paid 48 per cent., the amount of capital invested in land, buildings, plant and machinery, 85 per cent., and the output over 54 per cent.

8. **Railway and Tramway Workshops.**—(i.) *Details for each State.* The railway workshops of Australia form an important item in the metal and machinery class, and are chiefly State institutions. The following table gives the details concerning them, but includes also private and municipal establishments for manufacturing and repairing rolling stock:—

RAILWAY AND TRAMWAY WORKSHOPS, 1916.

Items.	N.S.W. 1915-16.	Vic. 1915.	Q'land. 1916.	S. Aust. 1915.	W. Aust. 1916.	Tas. 1916.	C'w'lth.
Number of factories ...	40	17	11	9	8	7	92
" employees ...	10,222	5,491	2,746	2,721	1,526	289	22,995
Actual h.p. of engines employed ...	7,168	1,503	2,669	596	2,209	205	14,350
Approx. value of land and buildings £	1,113,677	384,379	334,179	269,137	439,776	7,075	2,548,223
Approx. value of plant and mach'ny £	1,094,105	308,167	250,380	196,075	451,315	89,023	2,389,065
Total amt. of wages paid during year £	1,551,900	793,114	397,426	375,996	244,482	46,347	3,409,265
Value of fuel used ...	33,846	28,621	6,909	8,701	12,212	1,911	92,200
Value of raw material worked up £	824,354	869,498	199,507	256,243	157,936	16,535	2,324,063
Total value of output ...	£2,590,051	1,828,874	678,195	710,737	408,305	82,176	6,298,338
Value added in process of manuf'ct're £	1,765,697	959,376	478,688	454,494	250,379	65,641	3,974,275

(ii.) *Northern Territory Railway Workshops.* In addition to the above, a railway workshop is in operation in the Northern Territory. The work is confined almost exclusively to repairs to rolling stock, etc., no new goods being manufactured. For the sake of convenience this establishment is not included in any of the tables in this publication.

(iii.) *Development of Railway and Tramway Workshops, 1911 to 1916.* The following table shows the development of railway and tramway workshops in the Commonwealth since 1911:—

DEVELOPMENT OF RAILWAY AND TRAMWAY WORKSHOPS, Etc., FROM 1911 to 1916.

Items.	1911.	1912.	1913.	1914.	1915.	1916.
Number of factories...	72	73	73	75	77	92
employees ...	17,425	19,662	26,014	21,745	22,224	22,995
Actual horse-power of engines used ...	8,373	9,637	9,581	11,025	12,571	14,350
Approx. value of land and buildings	£ 2,036,178	2,128,273	2,213,697	2,378,764	2,471,731	2,548,223
" " plant and machinery	£ 1,433,093	1,563,710	1,685,050	2,141,654	2,236,578	2,389,065
Total amount of wages paid...	£ 2,163,460	2,702,711	3,018,968	3,066,734	3,174,946	3,409,265
Value of fuel used ...	£ 69,919	75,476	77,155	90,332	90,490	92,200
" of raw material worked up ...	£ 1,939,477	2,574,737	2,874,535	2,492,217	2,363,785	2,234,063
" of final output ...	£ 4,468,096	5,695,221	6,435,823	6,134,588	6,046,521	6,298,338
" added in process of manufacture	£ 2,528,619	3,120,484	3,561,288	3,642,371	3,682,736	3,974,275

The growth of the railway and tramway systems conjointly with heavy increases in passenger and goods traffic throughout the Commonwealth during the past few years has resulted in corresponding activity in workshops engaged in the manufacture or repair of rolling stock, etc. The above table shows that the number of employees increased 32 per cent. during the last five years, the amount of wages paid 57½ per cent., the final output nearly 41 per cent., while the value added in process of manufacture shows an increase of over 57 per cent.

9. **Smelting Works, etc.**—The subjoined table gives particulars of metal smelting, cyanide, pyrites, and metallurgical works. The classification of these works does not appear to be carried out on a uniform basis in the several States, and the combination of industries is, therefore, somewhat unsatisfactory. The returns do not include particulars of plants used on mines.

**SMELTING, CYANIDE, PYRITES, Etc., WORKS, 1916.**

Items.	N.S.W. 1915-16.	Vic. 1915.	Q'land. 1916.	S.A. 1915.	W.A.* 1916.	Tas. 1916.	C'w'lth.
Number of factories ... ..	29	52	12	6	...	2	101
" employees ... ..	2,957	272	119	1,730	...	498	5,576
Actual horse-power of engines employed	16,890	356	701	3,816	...	2,998	24,761
Approx. value of land and buildings £	256,610	10,076	11,675	19,748	...	7,000	305,109
" plant and machinery £	1,279,206	34,584	77,800	69,240	...	54,078	1,514,908
Total am't of wages paid during year £	462,822	24,323	20,019	320,437	...	79,648	907,248
Value of fuel used ... ..	224,237	4,529	8,750	180,950	...	65,732	484,198
Value of raw material worked up	5,399,991	79,674	94,166	2,600,977	...	501,973	8,676,781
Total value of output ... ..	7,884,570	138,241	138,251	3,707,286	...	1,323,795	13,192,143
Value added in process of manufacture £	2,484,579	58,567	44,085	1,106,309	...	821,822	4,515,362

\* See third paragraph below.

In New South Wales and Queensland the above figures represent smelting works; those for Victoria include forty-four cyanide works, two metallurgical, four pyrites, and two smelting works; South Australia four cyanide and two smelting; and Tasmania two smelting works.

The largest output was in New South Wales, viz., £7,884,570, or 59 per cent. on the total output for the Commonwealth. South Australia came next with £3,707,286, or 28 per cent.; this amount is made up of £3,701,688 smelting and £5598 cyanide. For Tasmania, the output of smelting was £1,323,795. The output in Victoria was £53,828, £42,850, £40,595, and £968 from pyrites, smelting, cyanide, and metallurgical works in the order named.

In Western Australia all the plants are worked on the mines and are therefore not included.

10. **Bacon-curing Factories.**—(i.) *Details for each State.* The following table gives particulars of factories engaged in bacon-curing in each State :—

**BACON-CURING FACTORIES, 1916.**

Items.	N.S.W. 1915-16.	Vic. 1915.	Q'land. 1916.	S.A. 1915.*	W.A. 1916.	Tas. 1916.	C'w'lth.
Number of factories ... ..	21	25	8	† 12	3	5	74
" employees ... ..	216	394	361	† 68	15	18	1,072
Actual horse-power of engines employed	304	933	614	146	57	63	2,317
Approx. value of land and buildings £	63,657	92,312	102,013	11,304	4,275	4,563	278,124
" plant and machinery £	23,714	60,567	56,110	5,350	2,150	1,739	149,630
Total amount of salaries and wages paid £	32,424	49,672	48,283	16,163	2,250	1,710	150,502
Value of fuel used ... ..	4,778	5,488	5,010	2,195	409	332	18,212
Value of raw material worked up	568,267	666,534	462,402	116,325	100,937	35,630	1,850,095
Total value of output ... ..	632,175	767,778	685,882	149,035	106,642	38,320	2,379,832
Value added in process of manufacture £	63,908	101,244	223,480	32,710	5,705	2,690	429,737

\* Including two meat preserving establishments employing 110 hands. † Not including meat preserving.

(ii.) *Quantity and Value of Production.* The following table shews the number of pigs killed and the quantity and value of the production of bacon-curing factories in each State :—

## PRODUCTION OF BACON-CURING FACTORIES, 1916.

Particulars.	N.S.W. 1915-16.	Victoria. 1915.	Q'land. 1916.	S. Aust. 1915.	W. Aust.* 1916.	Tasmania. 1916.	C'wealth.
QUANTITY (,000 omitted).							
Bacon & ham lbs.	11,638	11,451	9,738	1,736	1,852	641	37,056
Lard ... lbs.	556	570	622	78	4	43	1,873
VALUE.							
Bacon & ham £	565,421	709,599	517,099	90,013	106,773	32,665	2,021,570
Lard ... £	22,278	21,367	20,131	3,034	156	1,481	68,447
Other products £	36,627	36,812	148,652	3,154	...	4,174	229,419
PIGS KILLED.							
Number ...	143,839	129,259	126,796	19,185	†	7,276	426,355

\* In Western Australia, a portion of the bacon and ham treated in factories is imported and subsequently smoked in that State. † Not available.

Bacon and ham and other pig products are dealt with more fully in Section IX., *Farmyard and Dairy Production*.

11. **Butter, Cheese, and Condensed Milk Factories.**—(i.) *Details for each State.* The subjoined table gives particulars of butter, cheese, and condensed milk factories in each State. The returns are exclusive of eight butterine and margarine factories in New South Wales and Victoria employing 116 hands, the value of the output being £213,865, but include butterine and margarine factories in Western Australia.

## BUTTER, CHEESE, AND CONDENSED MILK FACTORIES, 1916.

Items.	N.S.W. 1915-16.	Vic. 1915.	Q'land. 1916.	S.A. 1915.	W.A.* 1916.	Tas. 1916.	C'w'lt'h.
Number of factories ...	167	190	122	44	5	31	559
" employees ...	1,007	1,194	816	152	20	98	3,287
Actual horse-power of engines employed	2,891	2,921	1,863	387	46	221	8,329
Approximate value of land and buildings £	221,706	310,412	135,379	36,187	12,600	18,400	734,686
" plant & machinery £	287,253	334,548	210,622	27,049	2,812	18,583	881,267
Total amount of wages paid ...	£ 141,333	139,543	99,607	12,153	2,283	8,217	403,136
Value of fuel used ...	£ 28,508	23,841	14,281	2,328	229	866	70,053
Value of raw material worked up	£ 3,253,551	2,364,314	1,759,561	235,209	24,239	126,722	7,763,596
Total value of output ...	£ 3,607,288	2,715,784	2,203,371	264,930	29,017	153,677	8,974,067
Value added in process of manufacture £	353,737	351,470	443,610	29,721	4,778	26,955	1,210,471

\* Including butterine and margarine.

(ii.) *Development of Factories, 1911 to 1916.* The following table shews the progress of the factories in this industry during the past five years:—

## DEVELOPMENT OF BUTTER, CHEESE, AND CONDENSED MILK FACTORIES IN THE COMMONWEALTH, 1911 to 1916.

Items.	1911.	1912.	1913.	1914.	1915.	1916.
Number of factories ...	540	530	531	528	536	559
" employees ...	3,730	3,518	3,507	3,568	3,300	3,287
Actual horse-power of engines used	6,818	8,156	7,726	7,895	7,948	8,329
Approx. value of land and buildings £	677,139	659,673	664,735	664,999	683,413	734,686
" plant and machinery £	775,792	788,922	828,986	850,770	852,260	881,267
Total amount of wages paid ...	£ 375,221	385,793	411,491	439,121	408,181	403,136
Value of fuel used ...	£ 67,555	70,155	72,214	81,809	71,796	70,053
" raw material worked up	£ 8,341,125	8,676,346	8,146,178	8,709,272	8,040,316	7,763,596
" final output ...	£ 9,432,122	9,760,205	9,284,747	9,898,398	9,203,041	8,974,067
Value added in process of manufacture £	1,090,997	1,083,859	1,138,569	1,169,126	1,162,725	1,210,471

(iii.) *Quantity and Value of Production.* The following table shews the quantity and value of butter, cheese, and condensed milk produced, and the quantity of milk used in butter, cheese, and condensed milk factories in each State:—

## PRODUCTION OF BUTTER, CHEESE, AND CONDENSED MILK FACTORIES, 1916.

Particulars.	N.S.W. 1915-16.	Victoria. 1915.	Q'land. 1916.	S. Aust. 1915.	W. Aust. 1916.	Tas. 1916.	C'w'lth.
QUANTITY (,000 OMITTED).							
Butter ... lbs.	55,352	37,594	26,924	2,983	358	2,137	125,348
Cheese ... "	3,951	2,130	8,424	1,410	...	449	16,364
Condensed and concentrated milk ... lbs.	4,918	16,690	6,584	...	...	...	28,192
VALUE (,000 OMITTED).							
Butter ... £	3,256	2,245	1,726	212	26	131	7,626
Cheese ... £	140	79	301	52	...	17	589
Condensed and concentrated milk ... £	92	383	176	...	...	...	651
MILK USED (,000 OMITTED).							
Butter factories ... gals.	127,268	85,570	62,351	6,075	699	5,341	287,304
Cheese " " "	4,190	2,185	8,321	1,377	...	451	16,524
Condensed " milk factories ... "	1,400	5,455	1,964	...	...	...	8,819

The butter, cheese and condensed milk industries are dealt with more fully in Section IX., *Farmyard and Dairy Production*.

12. **Meat and Fish Preserving, Ice and Refrigerating Works.**—These industries are now of considerable importance in Australia. Large freezing works have been installed at many ports in the Commonwealth for the purpose of freezing produce chiefly for export, while insulated space for the carriage of frozen produce is provided by a number of steamship companies trading between Australia and other parts of the world. Extensive meat freezing and canning works have recently been erected in the Northern Territory at Darwin at a cost to date of £700,000, and it is estimated that, on completion, the expenditure will have reached three-quarters of a million. The Commonwealth Government has entered into an agreement with the proprietors in regard to the carriage of cattle at special rates provided that private owners of cattle may have their stock treated under reasonable terms and conditions. Operations were commenced early in 1917, and between April and August 18,911 cattle were treated. When the works are in full operation it is expected that from 400 to 500 head of stock will be treated daily. Particulars regarding the export of frozen beef and mutton may be found on pages 314 and 318 hereof respectively.

The particulars given in the subjoined table include ice-making and freezing works, and also meat-canning factories, separate particulars for each item for all the States not being available.

## MEAT AND FISH PRESERVING, ICE AND REFRIGERATING WORKS, 1916.

Items.	N.S.W. 1915-16.	Vic. 1915.	Q'land. 1916.	S.A. 1915.	W.A. 1916.	Tas. 1916.	C'w'lth.
Number of factories ...	106	34	57	18	20	6	241
" employees ...	1,465	1,008	4,518	310	120	30	7,451
Actual horse-power of engines employed	5,765	5,736	11,042	* 877	1,102	151	24,673
Approx. value of land and buildings £	708,662	416,498	1,314,061	* 158,851	48,124	9,800	2,655,996
" plant and machinery £	544,853	240,878	916,593	* 86,198	57,810	6,016	1,852,348
Total amount of wages paid during year £	167,835	134,472	542,079	* 26,066	18,085	3,204	891,741
Value of fuel used ...	40,002	27,222	65,850	* 7,368	7,789	2,148	150,379
Value of raw material worked up	£ 2,472,379	886,953	4,428,594	* 39,892	5,443	1,539	7,834,800
Total value of output ...	£ 2,870,460	1,136,622	5,595,575	* 71,207	39,238	12,036	9,725,188
Value added in process of manufacture £	398,081	249,669	1,166,981	* 31,315	33,795	10,497	1,890,338

\* Excluding two meat preserving establishments employing 110 hands.



The following table gives particulars, so far as available, of meat tinned during the year :—

### MEAT PRESERVING WORKS—OUTPUT, 1916.

Output.	N.S.W. 1915-16.	Vic. 1915.	Q'land. 1916.	S. Aust. 1915.	W. Aust. 1916.	Tas. 1916.	C'w'Ith.
Tinned Meat ... .. Cwt.	44,582*	40,927	217,571†	1,488‡	...	...	304,568

\* Also 7,340 cwt. tinned rabbits. † Also 3,452 cwt. salted meat. ‡ Exclusive of large quantity of tinned rabbits, particulars of which are not available for publication.

Large quantities of rabbits, hares, and poultry, for which, however, complete returns are not available, were treated in freezing works. During 1915, over 3,300,000 rabbits and hares were treated in Victoria alone. Exclusive of Victoria, for which State particulars are not available, the returns shew that 92,296 tons of ice, valued at £174,426, were manufactured in the Commonwealth in 1916.

Full particulars of quantities and value of beef, mutton, and lamb preserved by cold process, exported from the Commonwealth during a series of years, will be found in Section VII., *Pastoral Production*.

**13. Biscuit Factories.**—The following table gives particulars regarding establishments at which the manufacture of biscuits, cakes, etc., was carried on in each State during the year 1916:—

### BISCUIT, Etc., FACTORIES, 1916.

Items.	N.S.W. 1915-16.	Vic. 1915.	Q'land. 1916.	S.A. 1915.	W.A. 1916.	Tas. 1916.	C'with.
Number of factories ... ..	7	7	21	3	5	3	46
employees ... ..	1,386	1,361	561	127	139	121	3,695
Actual horse-power of engines employed	797	362	301	76	132	49	1,717
Approx. value of land and buildings £	109,466	72,750	65,012	18,350	14,415	20,600	300,593
plant and machinery £	110,290	61,068	43,860	11,102	18,088	10,675	255,083
Total amount of wages paid during year £	91,187	111,794	55,935	8,860	10,154	9,387	287,317
Value of fuel used ... ..	£ 9,646	9,925	2,741	1,617	1,333	1,349	26,611
Value of raw material worked up £	516,684	424,234	157,421	33,665	40,700	32,399	1,205,103
Total value of output ... ..	£ 768,876	669,841	278,189	61,114	60,332	54,182	1,892,584
Value added in process of manufacture £	252,192	245,607	120,768	27,449	19,682	21,783	687,481

**14. Jam and Fruit Preserving, Pickles, Sauces, and Vinegar.**—The jam and fruit preserving industry has increased in importance of late years, consequent on the extension of fruit-growing. As an exporting industry it is comparatively recent, but is of increasing value, and has shewn considerable expansion during the past three years. During the year ended 30th June, 1917, 45,074,352 lbs. of jams and jellies, valued at £949,112, were exported from the Commonwealth. The subjoined table gives particulars of factories at which these industries were carried on in each State during the year. Separate returns for the individual industries are not available for most of the States.

### JAM AND FRUIT PRESERVING, PICKLES, SAUCES, AND VINEGAR. FACTORIES; 1916.

Items.	N.S.W. 1915-16.	Vic. 1915.	Q'land. 1916.	S.A. 1915.	W.A. 1916.	Tas. 1916.	C'with.
Number of factories ... ..	36	30	22	26	8	17	139
employees ... ..	1,160	1,689	334	422	66	998	4,669
Actual horse-power of engines employed	488	393	100	122	30	521	1,714
Approx. value of land and buildings £	115,333	126,875	18,904	34,160	5,627	66,378	367,277
plant and machinery £	60,831	57,621	15,067	17,048	2,035	32,927	185,529
Total amount of wages paid during year £	97,898	135,768	22,416	25,441	3,663	80,742	365,928
Value of fuel used ... ..	£ 6,027	8,918	1,082	2,129	326	6,459	24,941
Value of raw material worked up £	553,516	666,122	75,998	131,845	11,496	475,125	1,919,102
Total value of output ... ..	£ 738,980	1,009,533	127,464	193,511	18,719	687,428	2,775,635
Value added in process of manufacture £	180,464	343,411	51,466	61,666	7,223	212,303	856,533

# INDIVIDUAL INDUSTRIES.

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The following table shews the quantity and value of jams, pickles, and sauces manufactured in each State:—

## QUANTITY AND VALUE OF JAMS, PICKLES, AND SAUCES MANUFACTURED, 1916.

Particulars.	N.S.W. 1915-16.	Victoria. 1915.	Q'land. 1916.	S. Aust. 1915.	W. Aust. 1916.	Tas. 1916.	C'wealth.
QUANTITY (,000 OMITTED).							
Jams ... lbs.	32,022	34,210	1,686	8,211	†	29,201	\$105,330
Fruit, preserved lbs.	2,390	5,929	5,264	1,852	...	13,712	19,147
Pickles ... pints	2,739	1,286	*100	238	88	29	4,480
Sauces ... pints	3,106	5,827	348	928	336	67	10,612
VALUE.							
Jams ... £	522,365	697,854	33,405	128,679	†	525,512	\$1,907,815
Fruit, preserved £	40,856	95,925	60,892	29,140	...	66,687	293,500
Pickles ... £	51,710	38,009	3,604	4,571	2,140	604	100,638
Sauces ... £	65,334	177,745	6,098	17,691	5,919	1,357	274,144

\* Approximate. † Exclusive of 71,724 cwt. fruit pulped, value £90,147. ‡ Information not available for publication. § Exclusive of Western Australia.

15. **Confectionery.**—The following table shews the present position of the confectionery industry. Its growth will be apparent when it is stated that at the close of 1900 there were in New South Wales only 16 establishments, with 706 employees, and in Victoria 16 establishments, employing 731 persons, the plant and machinery in the former State being valued at £2815, and in the latter at £19,070.

## CONFECTIONERY FACTORIES, 1916.

Items.	N.S.W. 1915-16.	Vic. 1915.	Q'land. 1916.	S.A. 1915.	W.A. 1916.	Tas. 1916.	C'w'thb.
Number of factories ...	55	36	9	9	4	4	117
" employees ...	1,641	1,987	480	285	152	25	4,570
Actual horse-power of engines employed	687	839	147	244	184	26	2,181
Approx. value of land and buildings £	252,035	112,041	30,712	31,339	24,875	11,550	462,555
" plant and machinery £	103,501	113,320	22,041	33,228	19,068	3,193	294,351
Total amount of wages paid during year £	159,247	149,384	34,443	19,156	12,624	2,426	377,310
Value of fuel used ...	9,874	12,638	1,521	2,351	1,122	156	37,662
Value of raw material worked up	£ 681,405	542,849	61,659	63,676	42,042	14,820	1,406,451
Total value of output ...	£1,003,745	851,817	133,036	104,560	61,186	19,331	2,173,675
Value added in process of manufacture £	322,340	308,968	71,377	40,884	19,144	4,511	767,224

16. **Flour Mills.**—The following table shews the position of the flour-milling industry:—

## FLOUR MILLS, 1916.

Items.	N.S.W. 1915-16.	Vic. 1915.	Q'land. 1916.	S.A. 1915 *	W.A. 1916 *	Tas. 1916	C'w'thb.
Number of factories ...	63	51	12	42	16	13	197
" employees ...	1,026	651	212	469	287	124	2,769
Actual horse-power of engines employed	4,891	3,887	993	2,614	1,984	594	14,893
Approx. value of land and buildings £	394,087	211,615	73,920	117,077	99,418	47,200	943,317
" plant and machinery £	336,982	250,186	78,441	141,861	100,356	29,400	937,226
Total am't of wages paid during year £	147,724	70,982	35,548	48,043	39,281	15,281	356,859
Value of fuel used ...	£ 22,956	15,029	3,157	8,469	6,436	3,960	60,007
Value of raw material worked up	£3,223,979	2,368,489	563,526	857,046	792,624	359,902	8,165,566
Total value of output ...	£3,676,602	2,739,730	647,586	969,937	938,177	392,956	9,364,988
Value added in process of manufacture £	452,623	371,241	84,060	112,871	145,553	33,054	1,199,422

\* The manufacture of cornflour, oatmeal, etc., was also carried on in some of these establishments.

The production of flour by the mills in each State of the Commonwealth in the years 1911 to 1916 was as follows:—

## FLOUR MILLS—PRODUCTION 1911 to 1916.

Year.	N.S.W.	Victoria.	Q'land.	Sth. Aust.	West. Aust.	Tasmania.	C'wealth.
	Tons.*	Tons.*	Tons.*	Tons.*	Tons.*	Tons.*	Tons.*
1911	253,556	247,434	27,960	100,374	40,642	21,335	691,301
1912	255,359	225,376	25,855	103,100	49,319	18,044	677,053
1913	285,425	252,763	33,889	107,994	61,997	18,545	760,613
1914	266,302†	246,136	35,402	84,701	61,922	19,382	713,845
1915	266,302†	134,401	39,734	49,404	32,396	19,573	541,810
1916†	254,393	134,401	42,559	49,404	70,912	25,369	577,038

\* Tons of 2000 lbs. † Year ended 30th June, 1915. ‡ See note † first table this section.

The total production of flour for the Commonwealth for the last year, viz., 577,038 tons, was valued at £7,569,145; in addition 257,385 tons of bran and pollard, valued at £1,648,676, were made. The total quantity of wheat ground was 28,117,519 bushels.

17. **Sugar Mills.**—The following table shews the position of the cane-crushing branch of the sugar-making industry. This industry is carried on in Queensland and New South Wales, the only States of the Commonwealth in which the sugar-cane is grown.

## SUGAR MILLS, 1916.

Items.	N.S.W. 1915-16.	Queensland. 1916.	Total.
Number of factories ... ..	3	42	45
" employees ... ..	463	4,528	4,991
Actual horse-power of engines employed ... ..	1,768	13,473	15,241
Approximate value of land and buildings £	54,000	354,738	408,738
" " plant and machinery £	481,027	2,757,585	3,238,612
Total amount of wages paid during year £	50,811	478,680	529,491
Value of fuel used ... ..	£ 4,270	55,569	59,839
Value of raw material worked up ... ..	£ 222,748	2,089,131	2,311,879
Total value of output ... ..	£ 356,368	3,180,804	3,537,172
Value added in course of manufacture £	133,620	1,091,673	1,225,293

The product of the sugar mill is raw sugar and molasses, the former being sent to the refineries in different parts of Australia for further treatment. Part of the molasses produced is used in distillation, part is turned into food cake for cattle, and part is used for manuring land, but a considerable quantity is run to waste. The following tables shew the progress of this industry in each State from the dates at which information is first obtainable :—

## SUGAR MILLS, NEW SOUTH WALES, 1870 to 1916.

Items.	1870.	1877.	1886.	1896.	1901.	1911.	1912.	1913.	1914-15.	1915-16.
No. of factories	27	50	64	23	12	4	3	3	3	3
" employees	..	1,065	2,259	1,475	695	469	469	486	437	463
Cane crushed tns	..	* 1,065	* 2,259	..	* 695	167,799	141,274	185,910	181,606	157,748
Sugar produced	..	..	..	..	..	..	..	..	..	..
tons	677	7,537	13,750	28,557	19,519	17,299	16,817	22,192	20,029	19,144
Molasses produced	..	..	..	..	..	..	..	..	..	..
...gals.	...	345,543	507,000	2,520,580	1,300,909	796,440	667,100	966,000	1,104,000	1,099,000

\* Not available.

The reduction in the number of New South Wales mills is due chiefly to the tendency towards concentration of cane-crushing in mills fitted with modern machinery, and the consequent closing of the small home mill. On the north coast of New South Wales some land formerly devoted to sugar-growing has been turned into pasture in connection with the dairying industry.

## SUGAR MILLS, QUEENSLAND, 1868 to 1916.

Items.	1868.	1876.	1886.	1896.	1901.	1911.	1914.	1915.	1916.
No. of factories ...	10	70	118	63	52	49	47	44	42
... employees ...	...	...	...	3,796	...	4,295	4,835	4,220	4,528
Cane crushed ... tons	...	17,945	140,756	166,640	178,160	1,534,451	1,922,633	1,152,516	1,579,514
Sugar produced tons	619	8,214	59,225	100,774	120,858	173,296	225,847	140,496	176,973
Molasses—									
Sold to distillers gals						2,393,669	2,374,501	1,063,298	818,812
Used as fodder gals						789,564	898,693	1,847,112	1,439,108
Used as Manure gals	*	*	*	*	*	223,000	476,556	64,400	54,600
Run to waste or burnt									
† gals						1,847,333	3,278,841	1,892,201	3,232,835
In stock ...						1,197,626	977,629	869,914	797,084
Total Molasses † gals	68,622	416,415	1,784,266	2,195,470	3,679,952	6,451,192	8,006,220	5,736,925	6,342,439

\* No record. † Acres crushed. ‡ Quantity recorded: large quantities run to waste of which no record is kept. § Including 135,390 gallons syrup.

Information regarding the cultivation of sugar-cane may be found in the section of this book dealing with *Agricultural Production*. (See pages 371 to 374.)

**18. Sugar Refineries.**—The establishment of the sugar-refining industry considerably antedates the establishment of the sugar-milling industry, the raw material operated upon being originally brought chiefly from Mauritius and the East. In 1916 there were two sugar refineries in each of the States of Victoria and Queensland, and one in each of the States of New South Wales and South Australia. The returns for the individual States cannot be disclosed.

In the six refineries in the Commonwealth, an average number of 1617 hands was employed during the year. The approximate value of land and buildings was £448,871; of plant and machinery, £1,051,171; and the total amount of wages paid during the year was £222,000. The value of all materials used in sugar refineries was £4,965,992, while the total output reached £5,816,915. The amount of crude sugar used was 263,479 tons, and of refined sugar produced 251,764 tons, valued at £5,789,562.

**19. Breweries.**—(i.) *Details for each State.* The following table gives particulars of breweries in each State:—

## BREWERIES, 1916.

Items.	N.S.W. 1915-16.	Victoria. 1915.	Q'land. 1916.	S. Aust. 1915.	W. Aust. 1916.	Tas. 1916.	C'w'lth.
Number of factories ...	24	22	10	11	14	5	86
... employees ...	940	903	385	348	486	117	3,179
Actual horse-power of engines employed ...	2,507	3,199	619	990	1,430	137	8,882
Approx. value of land and buildings ... £	623,919	434,295	133,132	99,985	176,931	396,450	1,864,712
Approx. value of plant and machinery ... £	619,498	419,896	124,011	106,561	203,164	45,716	1,518,846
Total amount of wages paid during year ... £	172,300	159,870	63,755	53,573	89,693	20,813	560,004
Value of fuel used ... £	33,007	23,692	8,087	8,138	11,626	2,765	87,375
Value of raw material worked up ... £	676,287	481,327	127,942	107,304	122,574	33,181	1,548,615
Total value of output ... £	1,454,641	1,061,196	496,834	309,526	441,172	108,675	3,872,044
Value added by process of manufacture ... £	778,354	579,869	368,892	202,222	318,568	75,494	2,323,429

(ii.) *Production and Materials Used.* The following table shows the quantity and value of ale and stout brewed and the quantity of raw materials used in each State during the year:—

### PRODUCTION AND MATERIALS USED IN BREWERIES, 1916.

Particulars.	N.S.W. 1915-16.	Victoria. 1915.	Q'land. 1916.	S. Aust. 1915.	W. Aust. 1916.	Tasmania. 1916.	C'wealth.
ALE AND STOUT BREWED.							
Quantity gallons	22,997,466	20,339,924	5,483,575	5,030,354	5,298,607	1,732,165	60,882,091
Value* ... £	1,033,045	1,061,196	496,834	304,398	426,361	108,127	3,429,961
RAW MATERIALS USED.							
Malt ... bush.	666,088	600,333	162,424	118,086	159,284	64,383	1,770,598
Hops ... lbs.	849,161	661,299	228,055	160,593	205,608	97,530	2,302,246
Sugar ... cwt.	104,460	111,363	33,348	31,774	26,288	6,504	313,737
RAW MATERIALS USED PER 1000 GALLONS OF ALE AND STOUT PRODUCED.							
Malt ... bush.	28.96	29.52	29.62	23.47	30.06	37.17	29.08
Hops ... lbs.	36.92	32.51	41.59	31.92	38.80	56.31	36.17
Sugar ... cwt.	4.54	5.48	6.08	6.32	4.96	3.75	5.15

\* Exclusive of excise duty.

(iii.) *Development of Breweries, 1911 to 1916.* The following table shews the progress of this industry during the past six years:—

### DEVELOPMENT OF BREWERIES FROM 1911 to 1916.

Items.	1911.	1912.	1913.	1914.	1915.	1916.
Number of factories ...	121	110	101	95	90	86
“ employees ...	3,450	3,532	3,551	3,535	3,295	3,179
Actual horse-power of engines used ...	5,008	5,678	6,930	8,313	8,430	8,882
Approx. value of land and buildings £	1,469,449	1,526,629	1,554,187	1,860,584	1,872,535	1,864,712
“ plant and machinery £	970,618	1,078,724	1,171,595	1,433,616	1,452,639	1,518,846
Total amount of wages paid ... £	483,393	523,812	552,843	575,446	548,632	560,004
Value of fuel used ... £	69,284	76,906	75,824	86,175	81,252	87,375
“ raw material worked up ... £	1,273,522	1,494,070	1,568,620	1,534,656	1,494,974	1,548,615
“ final output ... £	3,318,937	3,647,850	3,817,396	4,107,498	3,869,786	3,872,044
Value added in process of manufacture £	2,045,415	2,153,780	2,248,776	2,572,842	2,374,612	2,323,429

The main feature in the history of the brewing industry, which was established at an early date in Australia, has been the change from the small local brewery in every township of moderate size to the large centralised city brewery. This, however, has not been so much in evidence during the period embraced in the above table, the reduction of the number of establishments during recent years being mainly due to several large amalgamations. The total value of output of breweries in the Commonwealth increased from £3,318,937 in 1911 to £3,872,044 in 1916, and the quantity of ale and stout brewed during the same period increased from 56,346,263 to 60,882,091 gallons. The average production per head of mean population was practically the same for the two years, being 12.55 gallons per head for 1911 and 12.41 for 1916.

20. *Distilleries.*—The subjoined table gives particulars of distilleries in four States. There are no distilleries in Western Australia or Tasmania.

### DISTILLERIES, 1916.

Items.	N.S.W. 1915-16.	Vic. 1915.	Qld. 1916.	S.A. 1915.	W.A. 1916.	Tas. 1916.	C'with.
Number of factories ...	3	9	3	19	...	...	34
“ employees ...	31	92	39	83	...	...	245
Actual horse-power of engines employed ...	114	217	52	222	...	...	605
Approximate value of land and buildings £	20,230	103,985	13,000	29,023	...	...	166,238
Approx. value of plant and machinery £	62,672	76,549	17,500	26,125	...	...	182,846
Total amount of wages paid during year £	6,146	10,883	5,573	6,690	...	...	29,292
Value of fuel used ... £	1,664	2,947	1,460	1,960	...	...	8,031
Value of raw materials worked up ... £	39,091	32,209	6,057	38,108	...	...	115,465
Total value of output ... £	63,041	61,604	33,233	57,657	...	...	215,535
Value added in process of manufacture £	23,950	29,395	27,176	19,549	...	...	100,070

The total quantity of rum distilled during the year was 458,961, of whisky 120,157, of brandy 113,139, and of other spirits 1,734,182 proof gallons. The materials used comprised 396,981 cwt. of molasses and sugar, and 2,019,421 gallons of wine. Particulars for the separate States are not available for publication.

21. **Tobacco, Cigars, and Cigarettes.**—(i.) *Details for each State.* During the year there were thirty-one establishments in which the manufacture of tobacco, cigars, and cigarettes was carried on. There were no factories engaged in this industry in Tasmania.

#### TOBACCO, CIGAR, AND CIGARETTE FACTORIES, 1916.

Items.	N.S.W. 1915-16.	Vic. 1915.	Qld. 1916.	S.A. 1915.	W.A. 1916.	Tas. 1916.	C'w'lth. †
Number of factories ...	12	13	2	2	6	...	35
" employees ...	1,969	1,501	99	31	39	...	3,739
Actual horse-power of engines employed	495	375	26	...	18	...	914
Approx. value of land and buildings £	220,217	177,365	5,114	5,319	4,053	...	412,068
" plant and machinery £	130,617	111,410	8,491	2,535	900	...	253,953
Total amount of wages paid during year £	198,558	185,889	8,446	*	1,542	...	†394,435
Value of fuel used ...	6,543	2,916	232	*	29	...	†9,720
Value of raw material worked up £	1,356,206	731,948	29,740	*	6,310	...	†2,124,204
Total value of output ...	1,952,871	1,199,660	60,798	*	10,104	...	*3,223,433
Value added in process of manufacture £	595,665	467,712	31,058	*	3,794	...	†1,099,229

\* Not available for publication.

† Exclusive of South Australia.

‡ Including four condiment establishments.

(ii.) *Quantity of Goods Produced, and Tobacco Leaf Used.* The following table shews the quantity of goods produced in tobacco factories in each State, and the quantities of imported and Australian-grown leaf used :—

#### PRODUCTION OF TOBACCO FACTORIES AND QUANTITY OF LEAF USED, 1916.

Particulars.	N.S.W. 1915-16.	Victoria. 1915.	Q'land. 1916.	S. Aust. 1915.	W. Aust. 1916.	Tas. 1916.	C'w'lth.
QUANTITY (,000 OMITTED).							
Manufact'ed tobacco lbs.	5,041	5,023	*	*	9	...	10,306
Cigars ... { lbs.	99	263	...	*	*	...	\$362
" " " { No.	8,638	22,677	...	*	*	...	\$31,315
Cigarettes ... { lbs.	3,043	308	...	...	†	...	\$3,351
" " " { No.	1,352,666	138,111	...	...	‡	...	\$1,490,777

#### TOBACCO LEAF USED (,000 OMITTED).

Australian leaf... lbs.	988	516	*	*	...	...	1,730
Imported leaf ... lbs.	6,363	4,415	*	*	†9	...	10,811

\* Not available for publication. † For tobacco and cigarettes only. ‡ Included with tobacco.  
§ Incomplete.

(iii.) *Development of Industry.* This industry was among the first to be established in Australia. In 1861 New South Wales had eleven factories, producing 177,744 lbs. of manufactured tobacco; in the same year there was one factory in Victoria, but the quantity of tobacco manufactured is not available. The Australian market has for many years been largely supplied with local manufactures. The quantities imported into Australia during 1916-17 were—manufactured tobacco 1,645,325 lbs., cigars 149,500 lbs., and cigarettes 163,581 lbs., while the quantities manufactured in Australian factories were respectively 10,306,085 lbs., 361,592 lbs., and 3,350,643 lbs. The following tables shew the development of the tobacco manufacturing industry in the Commonwealth during recent years :—

### DEVELOPMENT OF TOBACCO, CIGAR, AND CIGARETTE FACTORIES IN THE COMMONWEALTH, 1911 to 1916.

Items.	1911.	1912.	1913.	1914.	1915. †	1916. †
Number of factories ... ..	33	35	36	36	34	35
Number of employees ... ..	3,730	3,484	3,566	3,658	3,547	3,739
Actual horse-power of engines used ... ..	1,045	917	1,119	808	826	914
Approx. value of land and buildings ... ..	£ 373,895	349,022	353,447	402,462	404,593	412,068
Approx. value of plant and machinery ... ..	£ 214,576	227,294	231,547	248,532	241,591	253,933
Total amount of wages paid ... ..	£ 346,258	358,081	373,963	380,821*	370,237	*394,435
Value of fuel used ... ..	£ 4,488	4,267	4,053	7,365	7,607	*9,720
Value of raw material worked up ... ..	£ 1,468,212	1,623,713	1,651,226	1,905,489	*1,959,525	*2,124,204
Value of final output ... ..	£ 2,518,946	2,696,157	2,713,363	3,006,482	*3,041,050	*3,223,433
Value added in process of manufacture ... ..	£ 1,050,734	1,073,444	1,062,137	1,100,993	*1,081,525	*1,099,229

#### PRODUCTION.

Items.	1911.	1912.	1913.	1914.	1915.	1916.
Tobacco made ... .. 1000 lbs.	10,048	10,298	9,956	9,964	9,776	10,306
Cigars ... .. "	356	389	406	401	365	1362
Cigarettes ... .. "	2,164	2,606	2,768	3,197	3,175	†3,351
Leaf used ... .. "	10,993	11,827	11,677	12,091	*11,858	12,541

\* Exclusive of two factories in South Australia. † Incomplete.  
 ‡ Including four condiment establishments in Western Australia.

22. **Woollen, Cotton, and Tweed Mills.**—(i.) *Details for each State.* The manufacture of woollens and tweeds was established in Australia at an early period in its history, and was under Government control, the first record in New South Wales dating back to 1801, when a few blankets were made by the convicts; the first record in Victoria was in 1867. The following table, which gives particulars of the mills in each State, shews that the industry is now well established :—

#### WOOLLEN, COTTON, AND TWEED MILLS, 1916.

Items.	N.S.W. 1915-16.	Vic. 1915.	Q'ld. 1916.	S.A. 1915.	W.A. 1916.	Tas. 1916.	C'w'lt'h.
Number of factories ... ..	5	10	2	2	...	4	23
" employees ... ..	1,169	2,063	221	216	...	258	3,927
Actual horse-power of engines employed ... ..	9,230	2,679	220	261	...	148	5,538
Approx. value of land and buildings ... ..	£ 129,755	136,395	15,373	16,900	...	20,950	319,273
" plant and machinery ... ..	£ 192,457	265,267	26,616	29,523	...	39,808	553,671
Total amount of wages paid during year ... ..	£ 125,573	170,888	16,901	24,798	...	18,977	357,137
Value of fuel used ... ..	£ 19,924	21,962	...	...	...	1,546	40,283
Value of raw material worked up ... ..	£ 362,425	487,140	*	*	...	40,018	971,144
Total value of output ... ..	£ 696,805	931,774	*	*	...	91,275	1,888,115
Value added in process of manufacture ... ..	£ 334,379	444,634	*	*	...	51,257	916,971

\* As there are only two factories in each of the States of Queensland and South Australia, particulars of output, etc., are not disclosed; the amounts, however, are included in the totals for the Commonwealth.

(ii.) *Progress of Industry, 1911 to 1916.* The progress of woollen and tweed manufactures in the Commonwealth during the last six years is shewn in the following table :—

#### DEVELOPMENT OF WOOLLEN, COTTON, AND TWEED MILLS IN THE COMMONWEALTH FROM 1911 to 1916.

Items.	1911.	1912.	1913.	1914.	1915.	1916.
Number of factories ... ..	32	32	22	22	22	23
" employees ... ..	3,200	3,379	3,030	3,290	3,620	3,927
Actual horse-power of engines used ... ..	3,444	3,692	4,358	5,072	5,364	5,538
Approx. value of land and buildings ... ..	£ 283,115	307,049	299,306	311,391	310,114	319,273
" plant and machinery ... ..	£ 478,859	497,827	516,659	532,084	537,849	553,671
Total amount of wages paid ... ..	£ 203,194	232,561	231,018	257,590	313,826	357,137
Value of fuel used ... ..	£ 20,863	23,709	21,778	27,306	36,275	40,283
Value of raw material worked up ... ..	£ 447,829	468,728	475,637	603,387	836,298	971,144
Value of final output ... ..	£ 860,789	930,485	925,602	1,152,657	1,615,223	1,888,115
Value added in process of manufacture ... ..	£ 412,960	461,757	449,965	549,270	778,925	916,971

\*Excluding manufactures of hosiery and knitted goods, numbering 13 establishments in 1912, included in New South Wales returns previous to 1913.

(iii.) *Quantity and Value of Production.* The production of the woollen mills of Australia consists chiefly of tweed cloths, flannels, and blankets, all of which have acquired a reputation for purity and durability. Detailed particulars for the several States are not available for publication. The total length of tweed and cloth manufactured in the Commonwealth during 1916 was 4,707,548 yards. In New South Wales in 1915-16, 2,447,910 yards of tweed and cloth, and in Victoria in 1915, 1,331,137 yards were manufactured. The production of flannel in the Commonwealth amounted to 6,083,392 yards, while blankets, shawls, and rugs to the number of 1,097,178 were manufactured.

No cotton spinning or weaving, or linen weaving is carried on in Australia. Cotton ginning has been carried on intermittently in the northern States, and a mill was lately reopened at Ipswich in Queensland.

23. *Boots and Shoes.*—(i.) *Details for each State.* Among the manufactories of Australia the boot and shoe industry holds an important place both in respect to the employment afforded and the extent of its output. The following table shews latest available particulars of this industry for each State:—

#### BOOT AND SHOE FACTORIES, 1916.

Items.	N.S.W. 1915-16.	Vic. 1915.	Q'land. 1916	S.A. 1915.	W.A. 1916.	Tas 1916.	C'w'lth.
Number of factories ... ..	103	174	26	26	13	10	352
" employees ... ..	4,199	6,847	1,076	719	231	250	13,322
Actual horse-power of engines employed	1,248	1,362	371	167	49	52	3,249
Approx. value of land and buildings	£ 295,521	278,145	36,675	46,785	20,437	15,110	692,673
" plant and machinery	£ 153,165	205,538	26,578	25,969	9,450	8,137	428,837
Total amt. of wages paid during year	£ 413,414	625,886	102,250	62,907	23,246	16,997	1,244,700
Value of fuel used ... ..	£ 7,417	11,742	1,109	1,356	529	95	22,248
Value of raw material worked up	£ 857,752	1,502,285	194,336	129,083	65,882	44,053	2,793,391
Total value of output ... ..	£ 1,428,757	2,436,673	367,914	213,398	98,604	71,976	4,617,322
Value added in process of manufacture	£ 571,005	934,388	173,578	84,315	32,722	27,923	1,823,931

(ii.) *Progress of Industry, 1911 to 1916.* The progress of the industry in the last six years is shewn in the following table:—

#### DEVELOPMENT OF BOOT AND SHOE FACTORIES IN THE COMMONWEALTH, 1911 to 1916.

Items.	1911.	1912.	1913.	1914.	1915.	1916.
Number of factories ... ..	341	332	346	357	358	352
Number of employees ... ..	13,772	13,341	13,456	13,192	13,175	13,322
Actual horse-power of engines used	2,405	2,646	2,823	3,091	3,029	3,249
Approx. value of land and buildings	£ 565,735	598,659	629,787	656,576	677,307	692,673
Approx. value of plant and machinery	£ 389,879	398,014	429,994	415,695	418,529	428,837
Total amount of wages paid	£ 1,096,575	1,144,465	1,154,658	1,193,900	1,220,987	1,244,700
Value of fuel used ... ..	£ 16,792	17,244	18,073	18,902	20,713	22,248
Value of raw material worked up	£ 2,151,101	2,184,750	2,308,194	2,437,169	2,673,016	2,793,391
Value of final output ... ..	£ 3,713,948	3,819,371	4,004,466	4,156,590	4,466,885	4,617,322
Value added in process of manufacture	£ 1,562,847	1,634,621	1,696,292	1,719,421	1,813,669	1,823,931

Although the average number of employees in boot and shoe factories shews a slight decline during the past six years, a substantial and consistent advance in the value of output is in evidence during the same period. This is doubtless partly attributable to the increase in mechanical power employed, and the introduction of improved plant and machinery, the value of which was £428,837 in 1916, as compared with £389,879 in 1911.



(iii.) *Quantity and Value of Production.* The number and value of boots, shoes, and slippers made at factories in each State are shewn in the following table:—

### PRODUCTION OF BOOT AND SHOE FACTORIES, 1916.

Particulars.	N.S.W. 1915-16.	Vic. 1915.	Q'land. 1916.	S. Aust. 1915.	W. Aust. 1916.	Tas. 1916.	C'w'lth..
QUANTITY (,000 OMITTED).							
Boots and shoes ... pairs	3,550	5,257	729	619	217	165	10,537
Slippers ... pairs	291	191	14	23	2	7	528
Uppers* ... pairs	44	14	34	16	...	...	108
VALUE.							
Boots and shoes ... £	1,351,594	2,414,123	336,093	197,116	89,667	67,951	4,456,544
Slippers ... £	34,393	19,000	2,729	4,019	640	1,485	62,256
Uppers* ... £	12,440	3,550	13,219	4,122	...	...	33,331

\* Made for other than factory use.

24. **Clothing (Tailoring and Slop) Factories.**—The importance of this industry in the several States and in the Commonwealth as a whole is shewn in the following table:—

### CLOTHING (TAILORING AND SLOP) FACTORIES, 1916.

Items.	N.S.W. 1915-16.	Vic. 1915.	Q'land. 1916.	S.A. 1915.	W.A. 1916.	Tas. 1916.	C'wlth.
Number of factories ...	451	466	135	127	60	35	1,274
" employees ...	10,544	10,247	3,744	2,254	969	474	28,232
Actual horse-power of engines employed	746	467	261	103	62	8	1,647
Approx. value of land and buildings £	875,701	602,230	263,260	145,384	101,775	70,324	2,058,674
" plant and machinery £	69,338	83,539	42,449	14,199	9,456	2,959	221,940
Total amount of wages paid during year £	784,136	633,545	229,612	129,068	78,766	34,068	1,889,195
Value of fuel used... £	11,741	13,398	4,225	3,139	1,816	448	34,767
Value of raw material worked up £	1,268,476	1,279,278	487,799	174,702	147,643	45,121	3,403,019
Total value of output ... £	2,498,027	2,315,842	902,995	367,223	263,639	100,127	6,447,853
Value added in process of manufacture £	1,229,551	1,036,564	415,196	192,521	115,996	55,006	3,044,834

The substantial development that has taken place in the tailoring and slop branch of this industry may be accepted as an indication of the general prosperity of the community. The value of the output increased from £5,486,388 in 1911 to £6,447,853 in 1916, or approximately 17½ per cent.

### DEVELOPMENT OF CLOTHING (TAILORING AND SLOP) FACTORIES IN THE COMMONWEALTH FROM 1911 to 1916.

Items.	1911.	1912.	1913.	1914.	1915.	1916.
Number of factories ...	1,182	1,238	1,342	1,340	1,297	1,274
" employees ...	30,549	31,068	30,965	29,774	28,616	28,232
Actual horse-power of engines used ...	1,020	1,206	1,201	1,257	1,323	1,647
Approx. value of land and buildings £	1,931,274	2,155,643	2,212,346	2,219,346	2,195,419	2,058,674
" plant and machinery £	160,935	173,706	191,752	209,167	214,967	221,940
Total amount of wages paid ... £	1,854,135	2,010,779	2,075,916	1,979,088	1,895,146	1,889,195
Value of fuel used ... £	28,561	29,550	31,219	31,825	33,312	34,767
" raw material worked up £	2,610,348	2,696,987	2,732,241	2,864,893	3,096,134	3,403,019
" final output ... £	5,486,388	5,807,431	5,678,119	5,953,001	6,125,272	6,447,853
Value added in process of manufacture £	2,876,040	3,110,444	3,145,878	3,088,108	3,029,138	3,044,834

**25. Dressmaking and Millinery.**—Particulars of dressmaking and millinery establishments are given in the following table:—

**DRESSMAKING AND MILLINERY ESTABLISHMENTS, 1916.**

Items.	N.S.W. 1915-16.	Vic. 1915.	Q'land. 1916.	S.Aust. 1915.	W. A. 1916.	Tas. 1916.	C'w'lth.
Number of factories ... ..	277	446	54	46	50	17	890
" employees ... ..	5,143	8,107	1,350	763	718	302	16,383
Actual horse-power of engines employed	155	291	22	13	21	7	509
Approx. value of land and buildings	£ 388,001	446,201	46,230	30,714	47,820	15,800	974,766
" plant and machinery	£ 20,774	45,829	6,533	3,575	4,579	767	82,057
Total amount of wages paid during year	£ 235,386	373,607	57,766	30,403	39,023	13,192	749,377
Value of fuel used ... ..	£ 2,397	6,879	433	409	548	80	10,746
Value of raw material worked up	£ 326,290	736,727	95,120	40,260	50,612	17,746	1,266,755
Total value of output ... ..	£ 708,573	1,348,923	202,556	91,888	96,433	32,893	2,481,266
Value added by process of manufacture	£ 382,283	612,196	107,436	51,628	45,821	15,147	1,214,511

The development of dressmaking and millinery establishments in the Commonwealth during the past six years is shewn in the following table:—

**DEVELOPMENT OF DRESSMAKING AND MILLINERY ESTABLISHMENTS IN THE COMMONWEALTH FROM 1911 to 1916.**

Items.	1911.	1912.	1913.	1914.	1915.	1916.
Number of factories ... ..	1,050	994	995	991	892	890
" employees ... ..	18,803	18,476	18,217	17,318	15,616	16,383
Actual horse-power of engines used	319	371	376	410	428	509
Approx. value of land and buildings	£ 879,098	878,231	939,072	956,416	917,895	974,766
" plant and machinery	£ 67,307	74,466	72,257	79,182	79,357	82,057
Total amount of wages paid	£ 695,319	748,222	772,748	759,221	714,131	749,377
Value of fuel used ... ..	£ 8,722	9,143	9,238	9,164	9,440	10,746
Value of raw material worked up	£ 1,161,260	1,249,930	1,287,050	1,272,420	1,224,687	1,266,755
Value of final output	£ 2 280,553	2,429,315	2,492,105	2,429,133	2,364,862	2,481,266
Value added in process of manufacture	£ 1,119,293	1,179,385	1,205,055	1,156,713	1,140,175	1,214,511

The amount of wages paid increased nearly 8 per cent. during the last five years, and the final output slightly under 9 per cent. during the same period.

**26. Coach and Wagon Building Works.**—This industry forms the principal branch of manufacture in Class XI. (see § 1, 3 above). The subjoined table gives particulars of factories in this branch of industry in each State. The returns include establishments for the manufacture of wheels, spokes, etc.

**COACH AND WAGON BUILDING WORKS, 1916.**

Items.	N.S.W. 1915-16.	Vic. 1915.	Q'land. 1916.	S.A. 1915.	W.A. 1916.	Tas. 1916.	C'wlth.
Number of factories ... ..	228	310	80	89	39	23	769
" employees ... ..	2,367	2,381	576	697	248	177	6,446
Actual horse-power of engines employed	1,133	704	251	435	165	69	2,757
Approx. value of land and buildings	£ 316,237	258,883	64,160	96,831	41,080	23,007	800,198
" plant and machinery	£ 91,375	65,788	23,538	28,292	10,185	4,401	223,579
Total amount of wages paid during year	£ 260,132	207,276	40,451	58,994	24,588	15,487	606,928
Value of fuel used ... ..	£ 12,008	7,994	1,092	3,314	2,111	606	27,125
Value of raw material worked up	£ 245,534	228,739	53,689	57,755	35,214	18,005	638,936
Total value of output ... ..	£ 651,159	558,267	146,951	149,304	79,031	43,866	1,628,578
Value added in process of manufacture	£ 405,625	329,528	93,262	91,549	43,817	25,861	989,642

**27. Furniture and Cabinet Making and Billiard Table Making.**—These industries constitute the principal manufactures in Class XIII. (see § 1, 3 above). The following table gives particulars for each State:—

**FACTORIES FOR FURNITURE AND CABINET MAKING AND BILLIARD  
TABLE MAKING, 1916.**

Items.	N.S.W. 1915-16.	Vic. 1915.	Q'land. 1916.	S.A. 1915.	W.A. 1916.	Tas. 1916.	C'wlth.
Number of factories ... ..	174	187	65	31	28	10	495
" employees ... ..	2,311	1,755	980	692	309	219	6,266
Actual horse-power of engines employed	1,767	916	707	788	312	115	4,605
Approx. value of land and buildings	£ 318,895	221,820	97,664	59,729	57,222	19,490	774,820
" plant and machinery	£ 58,934	46,697	38,325	28,101	13,200	6,137	191,394
Total amount of wages paid during year	£ 273,033	168,399	102,155	66,918	41,062	20,385	671,952
Value of fuel used ... ..	£ 6,578	3,585	2,653	1,595	1,331	416	16,158
Value of raw material used ... ..	£ 287,722	217,306	111,956	57,453	55,194	17,437	747,068
Total value of output ... ..	£ 662,843	479,520	279,159	147,676	106,893	52,638	1,728,729
Value added in process of manufacture	£ 375,121	262,214	167,203	90,223	51,699	35,201	981,661

**28. Electric Light and Power Works.**—Particulars of the electric light and power works of the Commonwealth for latest date available are given in the subjoined table. In 1911 there were 164 establishments employing 2432 hands, whose salaries and wages amounted to £325,049; in 1916 these had increased to 245 establishments, 3079 hands, salaries and wages £559,170, while the value of output had increased during the five years from £1,663,185 to £2,484,756.

**ELECTRIC LIGHT AND POWER WORKS, 1916.**

Items.	N.S.W. 1915-16.	Vic. 1915.	Q'land. 1916.	S.A. 1915.	W.A. 1916.	Tas.* 1916.	C'wlth.
Number of factories ... ..	126	63	11	7	23	15	245
" employees ... ..	1,122	957	205	388	236	171	3,079
Actual horse-power of engines employed	104,942	33,127	13,347	15,510	19,759	6,023	192,708
Approx. value of land and buildings	£ 901,900	319,472	37,813	143,850	76,995	16,078	1,496,108
" plant and machinery	£ 2,024,328	1,569,553	166,373	418,760	440,295	360,849	4,980,158
Total amount of wages paid during year	£ 189,293	135,045	36,307	61,569	46,330	22,901	491,445
Value of fuel used ... ..	£ 244,752	77,149	28,834	34,433	89,443	7,827	482,438
Total value of output ... ..	£ 1,096,205	536,251	315,029	155,766	278,806	102,699	2,484,756

\* Including one establishment for manufacture of electric apparatus.

**29. Gas and Coke Works.**—There are gas works in operation in nearly all the chief towns in the Commonwealth. In New South Wales there are fourteen and in Queensland two coke factories which are worked as separate industries. The subjoined table gives particulars of gas and coke works in each State:—

**GAS AND COKE WORKS, 1916.**

Items.	N.S.W. 1915-16.	Vic. 1915.	Q'land. 1916.	S.A. 1915.	W.A. 1916.	Tas.	C'wlth.
Number of factories ... ..	59	47	18	5	4	2	135
" employees ... ..	2,021	2,175	542	387	57	173	5,355
Actual horse-power of engines employed	4,706	1,686	186	562	43	34	7,217
Approx. value of land and buildings	£ 668,923	476,265	194,582	11,612	21,366	30,000	1,402,748
" plant and machinery	£ 1868,933	1,343,392	693,215	455,036	63,451	159,091	4,783,118
Total amount of wages paid during year	£ 283,921	347,434	82,153	*	*	24,689	817,016†
Value of fuel used ... ..	£ 64,888	4,610	5,443	*	*	3,625	84,367†
Value of raw material used ... ..	£ 535,377	306,043	73,368	*	*	18,844	1,010,944†
Total value of output ... ..	£ 1558,163	1,035,941	287,403	*	*	68,214	3,192,815†
Value added in process of manufacture	£ 1022,786	729,898	214,015	*	*	49,370	2,181,871†

\* Not available for publication.

† Including South Australia and Western Australia.

The following table gives particulars regarding the quantity and value of the production of gas and coke works in each State during the year 1916 :—

### PRODUCTION OF GAS AND COKE WORKS, 1916.

Particulars.				N.S.W. 1915-16.	Vic. 1915.	Q'land. 1916.	S. Aust. 1915.	W. Aust. 1916.	Tas. 1916.	C'wlth.
QUANTITY.										
Gas made	...	1000 cub. ft.		6,220,011	4,107,578	902,357	*	*	205,350	12,227,463†
Coke	...	...	tons	648,279	204,957	61,105	*	*	8,988	954,928†
VALUE.										
Gas	...	...	£	985,321	776,000	233,927	*	*	53,195	2,224,368†
Coke	...	...	£	453,283	180,000	44,721	*	*	10,588	725,240†
COAL USED.										
Coal	...	...	tons	1,016,197	307,902	103,186	*	*	17,193	1,506,940†

\* Not available for publication.

† Including South Australia and Western Australia.

## SECTION XIV.

## WATER CONSERVATION AND IRRIGATION.

## § 1. Artesian Water.

1. **General.**—In every country in which droughts are recurrent, there are few problems the solution of which is of greater importance than that of an adequate system of water conservation. Much has been done in the Commonwealth so far as the supply of water to centres of population is concerned, and a description of several of the metropolitan water works will be found herein, viz., in the section dealing with "Local Government." In May 1912 an Interstate Conference on artesian water was held in Sydney, at which it was agreed that combined Governmental action should be taken with reference to delimitation of the artesian basin, hydrographic survey, analyses and utilisation of artesian water, etc. (See map on page 551.)

(i.) *The Great Australian Artesian Basin.* In speaking of the "Great Australian Artesian Basin," the area is understood which includes (a) considerably more than one-half of Queensland, taking in practically all that State lying west of the Great Dividing Range, with the exception of an area in the north-west contiguous to the Northern Territory; (b) a considerable strip of New South Wales along its northern boundary and west of the Great Dividing Range; and (c) the north-eastern part of South Australia proper, together with the extreme south-eastern corner of the Northern Territory. This basin (shewn approximately by the map on page 551) is said to be the largest yet discovered, and measures about 569,000 square miles, of which 376,000 square miles are in Queensland, 90,000 square miles in South Australia, 83,000 square miles in New South Wales, and 20,000 square miles in the Northern Territory. The area of the intake beds is estimated at 60,010 square miles, viz., 50,000 square miles in Queensland and 10,010 square miles in New South Wales. A description of the basin and its geological formation will be found in previous issues of the Year Book (see No. 6, p. 569).

(ii.) *The Western Australian Basins.* The Western Australian Basins fall naturally within five distinct groups, viz., the Eucla Basin, in the extreme south-east of the State, extending well into South Australia along the shores of the Great Australian Bight; the Coastal Plain Basin, west of the Darling Range; the North-West Basin, between the Murchison and Ashburton Rivers; the Gulf Basin, between Cambridge Gulf and Queen's Channel; and the Desert Basin, between the De Grey and Fitzroy Rivers. The boring operations in these basins are referred to hereinafter (see page 538).

The Recent and Tertiary strata which enter Western Australia at its eastern border, and which have a prevailing dip towards the Great Australian Bight, form the Eucla artesian water area. But where boring operations have been undertaken, the water has been found to be salt or brackish, and there are other conditions affecting the supply, such as local variations in the thickness of the beds, their relative porosity, and the unevenness of the floor upon which they rest, which, so far, have not been examined with sufficient thoroughness to enable many particulars to be given in regard to this basin.

In the Coastal Plain Basin to the west of the Darling Ranges artesian boring has, on the other hand, been carried on successfully for many years.

(iii.) *The Murray River Basin.* The Murray River basin extends over south-western New South Wales, north-western Victoria, and south-eastern South Australia. It is bounded on the west by the azoic and palæozoic rocks of the Mount Lofty and other ranges, extending northwards from near the mouth of the Murray to the Barrier Ranges, and on the east and north-east by the ranges of Victoria and New South Wales. This tertiary water-basin is occupied by a succession of sedimentary formations, both porous and impervious. It is of interest to note that the waters of the Murray River are partly supplied by influx from the water-bearing beds of this basin; this is proved by the fact that, at low water, springs are observed at certain places flowing into it from beneath the limestone cliffs from Pyap Bend downwards. Similar springs exist along the courses of other branches of the River Murray system, where they cut through the tertiary formation. On the Victorian side several bores have been put down, and water has been struck at various levels.

(iv.) *Plutonic or Meteoric Waters.* In previous Year Books will be found the theory of Professor Gregory<sup>1</sup> as to the origin of the water in the Australian artesian basin, together with the objections held thereto by a former Government Geologist of New South Wales.<sup>2</sup> (See Year Book No. 6, p. 570.)

(v.) *Particulars of Artesian and Sub-artesian Bores.* The following table gives particulars of artesian and sub-artesian bores in each State and in the Northern Territory up to the latest available date:—

**COMMONWEALTH AND STATES.\*—PARTICULARS OF ARTESIAN AND SUB-ARTESIAN BORES.**

Particulars.	N.S.W. 1916-17.	Vict. 1916-17.	Q'land.† 1915-16.	S. Aust.‡ 1916-17.	W. Aust. 1916-17.	N. Ter.‡ 1914.	Total.‡
Bores existing ... No.	491	285	2,816	141	115	128	3,976
Total depth bored ... feet	815,088	81,000	2,791,471	107,216	121,036	52,294	3,968,105
Daily flow ... ,000 gals.	\$95,899	†	433,871	†12,746	32,071	†	†
Depth at which artesian water was struck—							
Maximum ... feet	4,086	1,400	5,045	5,458	4,106	502	5,458
Minimum ... feet	89	150	10	65	175	110	10
Temperature of flow—							
Maximum ... ° Fahr.	148	†	210	208	140	†	†
Minimum ... ° Fahr.	70	†	81	82	60	†	†

\* There are no artesian bores in Tasmania. † Not available. ‡ Latest figures available.  
§ Incomplete. ¶ Government bores only. ¶ Exclusive of flow from pumping bores.

2. *New South Wales.*—(i.) *Artesian Water Supply.* The New South Wales portion of the great Australian basin, comprising approximately 70,000 square miles, is situated in the north-western portion of the State. Artesian boring in New South Wales dates from 1879, when a private bore was put down on the Kallara pastoral holding, between Bourke and Wilcannia. The first Government bore was that at Goonery, on the Bourke-Wanaaring road, completed in 1884.

1. See J. W. Gregory, F.R.S., D.Sc.: "The Dead Heart of Australia," London, John Murray, 1906: "The Flowing Wells of Central Australia," Geogr. Journ., July and August, 1911.

2. E. F. Pittman, A.R.S.M., formerly Government Geologist of New South Wales: "Problems of the Artesian Water Supply of Australia, with special reference to Professor Gregory's Theory." (Clarke Memorial Lecture, delivered before the Royal Society of New South Wales, 31st October, 1907); "The Great Australian Artesian Basin," Sydney, 1914; "The Composition and Porosity of the Intake Beds of the Great Australian Artesian Basin," Sydney, 1915.

The following statement shows the extent of the work which has been successfully effected by the Government and by private owners up to 30th June, 1917 :—

### NEW SOUTH WALES ARTESIAN BORES, 1917.

Bores.	Flowing.	Pumping.	Total.	Total Depth.
For Public Watering-places, Artesian Wells, etc. ... ..	124	31	155	320,970
For Country Towns Water Supply ... ..	2	1	3	4,354
For Improvement Leases ... ..	39	3	42	66,287
Total Government Bores ... ..	165	35	200	391,611
Private Bores ... ..	222	69	291	423,837

The average depth is 1,958 feet in the case of Government bores, and of private bores 1456 feet, and it ranges from 89 to 4338 feet. The two deepest wells in New South Wales are those at Boronga, in the County of Stapylton, with a depth of 4338 feet and a present outflow of 958,784 gallons; and at Dolgelly, in the Parish of Carcenga, in County Stapylton, with a depth of 4086 feet, and a present discharge of 577,930 gallons per day. The largest flow at the present time is that at the Wirrah bore, in the County of Benarba, which yields 1,205,190 gallons a day, and has a depth of 3578 feet.

Of the 541 bores which have been sunk, 387 are flowing, and give an aggregate discharge of 95,427,215 gallons per day; 104 bores give a pumping supply, the balance of 50 being failures; the total depth bored represents 877,242 feet.

The flow from seventy-three bores is utilised for supplying water for stock on holdings served in connection with Bore Water Trusts or Artesian Districts under the Water Act of 1912. The total flow from these bores amounts to 38,125,605 gallons per day, watering an area of 4,421,461 acres by means of 2702 miles of distributing channels. The average rating by the Bore Trusts to repay the capital cost, with four per cent. interest, in twenty-eight years, is 1.627d. per acre, including the cost of maintenance and administration.

In the majority of cases the remaining bores are used by pastoralists for stock watering purposes only, but in a few instances the supply is utilised in connection with country towns.

The watering of the north-western country by means of bore water has largely increased the carrying capacity of the land; and, what is of perhaps greater importance, it has made comparatively small pastoral settlement practicable in country previously confined almost entirely to the operations of companies holding immense areas.

It having been determined that multiplicity of bores is the chief factor governing the annual decrease in bore flows, and also that limiting the discharge from a bore will prolong its flowing life, action has been taken to prevent any waste by controlling the bore flow to actual requirements. It is confidently anticipated that this action will materially reduce the rate of decrease in the future.

(ii.) *Shallow Boring.* The scheme described in Official Year Book No. 9 (p. 520) for assisting settlers by sinking shallow bores has met with considerable success.

Operations commenced with one plant only, but the number has been increased gradually until twelve plants are at work.

A large number of applications from settlers wishing to take advantage of the liberal conditions offered under the regulations has been received, and further applications are coming to hand daily, so that even when the whole of the plants referred to are at work, they will probably be insufficient to cope with the demand. Out of 108 bores put in hand up to 30th June, 1917, eleven have proved failures.

There can be no question that the added value of the holdings represented by the bores already put down is considerably in excess of their cost, and as fairly conclusive evidence of this, it might be stated that in several instances the Government Savings Bank has, on completion of a bore, made the settler a sufficient advance to enable him to pay the total cost in cash.

In addition to the work carried out under the Shallow Boring Regulations outlined above, three plants are at present engaged in sinking bores on Crown lands in the Pilliga scrub for the Lands and Forestry Departments.

The fact that of the bores put down in the Pilliga scrub, twenty-five are giving a flowing supply, adds much to their value, and is of special interest as indicating the possibility of tapping a small and hitherto unknown artesian basin.

(iii.) *Private Artesian Bores.* Much has been done in the way of artesian boring by private enterprise. As far as can be ascertained, 318 private bores have been undertaken in New South Wales, of which twenty-seven were failures. The yield of the flowing bores is estimated at over 40 million gallons per day. No data are available regarding the pumping bores.

3. **Victoria.**—Victoria lies altogether outside the Great Australian Artesian Basin, and as water is generally available from surface or shallow underground supplies, there has not been much occasion for artesian boring. As early as 1880, however, an artesian well was bored at Sale, which gave a large supply of water of fair quality before it failed through corrosion of the casing. In 1905 a new bore was put down, which at a depth of 277 feet yielded sufficient water to fill Lake Guthridge, a local depression. But as the water was impure, and contained too much sulphuretted hydrogen, boring operations were continued to 520 feet, when the lowering of the casing shut off the supply of water. A further bore was then put down at some distance from the first, and this, at a depth of 238 feet, yielded a fresh and clear water supply of about 145,000 gallons per day. Corrosion troubles occurred here also, and at the end of 1912 a third bore was put down to a depth of 235 feet, artesian flows being struck at 187 feet and 235 feet. Towards the end of 1915 a flow of 200,000 gallons per day was struck at a depth of 125 feet on the Powerscourt Estate, near Maffra. Other bores are being put down in the locality.

Largely due to the failure of surface supplies in the drought of 1878 to 1886, no less than 499 bores were, before the end of 1888, put down by shire councils aided by the Government. The total depth bored was 40,000 feet; fresh water was struck in 78 instances; 47 yielded brackish but usable water; 229 were salt, while the balance were dry. The bores covered practically the whole of the settled portions of Northern and North-western Victoria and parts of Gippsland.

In the late eighties a number of bores were put down in the north-western part of the State, varying from 200 to over 2000 feet in depth, but without any notable success. In 1897 a Board reported on boring for artesian water supply in the Mallee country, but this report was adverse, except as regards the extreme northern portion thereof. In 1906 eight bores were put down on the Overnewton Estate, Maribyrnong, to depths varying from 147 to 272 feet; small supplies of good and medium water for stock purposes were obtained, but only one of the wells yielded water fit for domestic purposes. In 1908 boring was commenced in the Mallee country near the Border east of Pinnaroo in South Australia, and a line of bores from the Border to Kow Plains has proved the existence of a large sheet of underground water. Altogether, 87 bores have been successful in striking fresh water, and their depths vary from 155 to 752 feet, the water rising to within from 207 to 6 feet of the surface. In three instances the bores flow, the water



rising from four to seventeen feet above the surface. The fresh water extends nearly as far east as the 142nd meridian, and its northern limit is approximately the 35th parallel.

At the end of 1916 the number of existing Government bores in use in Victoria was 83, from which supplies are obtained by pumping. The total depth bored amounted to 39,783 feet, while the maximum and minimum depths at which water was struck were 1400 and 150 feet respectively. There are also about 140 existing private bores, with a total depth of about 30,000 feet.

4. **Queensland.**—A return relating to the 30th June, 1917, classifies the Queensland artesian bores under the following headings:—

**QUEENSLAND ARTESIAN BORES, 30th JUNE, 1917.**

Sunk by—	Artesian Flows.	Sub-Artesian or Pumped Supplies.	In Progress, Abandoned, or Uncertain.	Total.
Government ... ..	60	81	99	240
Local governing authorities ... ..	14	17	14	45
Private owners ... ..	1,072	987	717	2,776
Total ... ..	1,146	1,085	830	3,061

Of the 1146 flowing bores, 121 were of less than 10,000 gallons per day; 253 from 10,001 to 100,000 gallons; 476 from 100,001 to 500,000 gallons; 273 from 500,001 to 1,500,000 gallons; 18 from 1,500,001 to 2,000,000 gallons; and 5 from 2,000,001 gallons upwards. The deepest well was about forty miles west of Blackall, lying east of the Barcoo River; this had a depth of 5610 feet, and was stated to yield 80,000 gallons daily. Further sinking is in progress. The flow is, of course, a comparatively small one, many wells yielding, when uncontrolled, from one to three million gallons a day. The waters of many of the wells have been analysed, and some found suitable for wool-scouring only, others are suitable for watering stock but not for irrigation, owing to the presence of alkali; others again serve for both stock and irrigation, while some, such as those containing sulphuretted hydrogen, are not of any use. Water fit for stock may generally be said to be "safe" for domestic purposes in spite of its slightly mineral taste. The wells yielding the mineral waters known as "Helidon Spa," "Boonah Spa," and "Junot Spa," which are much in use in Queensland and New South Wales, are shallow wells from 60 to 200 feet in depth.

The following table shews particulars as to Queensland bores at the end of June, 1917:—

**QUEENSLAND ARTESIAN AND SUB-ARTESIAN BORES, 30th JUNE, 1917.**

Particulars.	State and Local Authorities.	Private.	Total.
Bores existing ... .. No.	285	2,776	3,061
Total depth bored ... .. feet	241,175	2,735,300	2,976,475
Daily flow ... .. gallons	33,061,540	397,280,450	430,341,990
Depth at which artesian water was struck—			
Maximum ... .. feet	4,256	5,450	...
Minimum ... .. "	354	10	...
Temperature of flow—			
Maximum ... .. °Fahr.	198	210	...
Minimum ... .. °Fahr.	85	81	...

5. **South Australia.**—There were in South Australia 141 bores existing at 31st December, 1917, of which 34 were artesian and 107 sub-artesian. There are 107 under 1000 feet in depth, 20 from 1000 to 2000 feet; six from 2000 to 3000 feet; five from 3000 to 4000 feet, and three over 4000 feet. The deepest flowing bore was at Patchawarra, on the Farina to Haddon, via Innamincka, route, measuring 5458 feet, but yielding only 200 gallons per day. The maximum flow, viz., 1,250,000 gallons, is obtained at Coonie Creek, east of Lake Frome.

The following table shews particulars as to South Australian bores at the end of December 1917:—

SOUTH AUSTRALIAN BORES, 1917.

Particulars.					Artesian and Sub-artesian.
Bores existing	...	...	...	...	141
Total depth bored	...	...	...	feet	107,216
Daily flow	...	...	...	gals.	*
Depth at which water was struck—					
Maximum	...	...	...	feet	5,458
Minimum	...	...	...	feet	65
Temperature of flow—					
Maximum	...	...	...	°Fahr.	208
Minimum	...	...	...	°Fahr.	82
Total cost of construction of bores up to end of year	...	...	...	...	£283,927
Expenditure during year on boring operations	...	...	...	...	£33,862

\* Not available.

(i.) *Bores between the Murray and the Eastern Boundary of the State.* The sinking of bores across the Ninety-mile Desert between the Murray and the Victorian boundary was commenced in 1886 at Coonalpyn; with the exception, however, of salt water at 55 ft., no success was met with. Ki Ki bore was sunk in 1887, and at 361 ft. a good supply of water fit for stock was struck. Tintinnarra bore was sunk in 1887; it was artesian when first tapped. The water was found to be fit for locomotive engines and is still used for that purpose. The bore at Emu Flat was also sunk in 1887. In 1904 a bore was sunk at Cotton, and numerous successful bores have since been put down by the Public Works Department, and subsequently by residents of the district. The water rises to a distance from the surface of from 15 to 320 feet, and the maximum quantity obtained per diem is 48,000 gallons at the Gosden bore. Several wells, ranging in depth from 55 to 221 feet, have also been sunk in this district. The latest Government bores are Kumara in the Hundred of Kingsford, and Perponda in the Hundred of Vincent. The former has a depth of 240 feet, and the water, which is in large supply, rises to within about 96 feet of the surface. The latter is 300 feet in depth, and the water rises to within 56 feet of the surface. The water is fresh, containing about  $\frac{3}{4}$  oz. salts and other solid matter per gallon.

(ii.) *Bores West of Oodnadatta.* A series of bores has been sunk, beginning with Broaden bore, 20 miles west of Oodnadatta, which was put down in 1911. The others since put down in this district are at Gypsum, Imbitcha, Mirackina, Raspberry Creek, Appreetinna, Wintinna and Marla. Of these, the only artesian supply is at Raspberry Creek, where 1,000,000 gallons per day of good water is obtained. The depths of these bores range from 280 feet at Mirackina to 1122 feet at Broaden, and the water from all of them is good.

(iii.) *Other New Bores.* New bores have been sunk at Peachawarrina, about 45 miles north-east of Marree, to a depth of 2484 feet, a large supply of good water being obtained, flowing over the surface at the rate of 500,000 gallons per diem; Possum bore, on

Opossum Creek, 1334 feet; and Allinga bore on Allinga Creek,  $2\frac{1}{2}$  miles north-west of Mount Ludgate, 1160 feet, where a good supply of water was obtained, flowing over the surface at the rate of 412,800 gallons per diem.

(iv.) *Eyre Peninsula.* From time to time bores have been sunk on Eyre Peninsula, but with little success. In some instances, stock water ( $1\frac{1}{2}$  ozs. salts to the gallon) was obtained, but this only occurred on the Nullarbor plains. In all other cases the water struck was far too salt to be used. Consequently the supply of water is now principally from catchments. A number of reservoirs have been constructed to hold from 1,000,000 to 9,000,000 gallons each. Many underground tanks have been built to contain from 40,000 up to 500,000 gallons each.

6. *Western Australia.*—The work by which the Government of Western Australia provides a permanent supply of water to Kalgoorlie, Boulder and adjacent districts on the eastern goldfields comes properly under the heading of "Water Supply Works." A description of this undertaking is fully given in previous issues of the Year Book. (See No. 6, p. 576.)

In August 1912 the administration of the Goldfields Water Supply and of the Mines Water Supply was transferred to a newly established Water Supply, Sewerage and Drainage Department. The statistics in connection with this department will be found in the section of this book dealing with *Local Government*.

The following table shews particulars as to Western Australian artesian bores at 30th June, 1917 :—

WESTERN AUSTRALIAN ARTESIAN BORES, 30th JUNE, 1917.

Particulars.	State.	Private.	Total.
Bores existing ... ..	66	49	115
Total depth ... .. feet	81,092	39,944	121,036
Daily flow ... .. gals.	23,864,700	8,206,700	32,071,400
Depth at which artesian water was struck—			
Maximum ... .. feet	4,016	*	...
Minimum ... .. feet	175	*	...
Temperature of flow—			
Maximum ... .. °Fahr.	140	*	...
Minimum ... .. °Fahr.	60	*	...

\* Not available.

To 30th June, 1917, the total number of Government bores was 66, and there were approximately 49 private bores recorded in addition. The total cost of construction of State bores to 30th June, 1917, was about £137,874, of which amount £96 was expended during the twelve months ended 30th June, 1916. The maximum outflow, 4,000,000 gallons per day, was obtained at Leederville in connection with the Metropolitan Water Supply at 2097 feet.

The boring operations which have been carried out in the artesian basins along the West Australian Coast are as follows :—

(i.) *The Coastal Plain Basin or Perth Area*, which, generally speaking, extends from Cape Leeuwin to Dongarra, and from which the Metropolitan Water Supply is largely drawn, yields a supply of water mostly fresh and suitable for domestic purposes, though towards the north it becomes brackish and is only suitable for stock purposes.

There are fifty-seven bores in the Metropolitan District, several of which have been put down to augment the hills supply and the domestic supply of the suburbs, and Fremantle is largely dependent upon this source.

(ii.) *The North-west Basin or Carnarvon Area* may be said to extend from Gantheaume Bay in the south to Onslow in the north, and embraces a very large tract of ideal sheep country.

Many private bores have been put down on sites which permit of the gravitation of the water for miles, and, by this means, a very considerable area has been put under stock. Some remarkable flows have been obtained and, in one case, at a depth of 300 feet a flow reputed to be 3,000,000 gallons per day was struck, the water being suitable for stock.

In all, about 27 bores have been put down.

(iii.) *The Gulf Basin or Broome Area.* So far very little development work has been done. Artesian bores have been put down in the town site, and the domestic requirements of the town are entirely supplied from this source.

The area extends from Condon in the south-west to the Meda River beyond Derby in the north, and for a considerable distance inland.

So far only five bores have been sunk, two being at Broome and two at Derby, and one on the telegraph line on the road between Derby and Hall's Creek, about 67 miles inland.

(iv.) *Eucla Area.* This area extends from Eucla on the South Australian border, to west of Israelite Bay. So far, beyond the bores put down on the route of the Trans-Australian Railway, very little has been done in proving the resources of this area.

In 1902 the first bore was sunk, about 35 miles north of Madura, and sub-artesian water struck at 430 feet, at an elevation of 400 feet above sea level.

Following upon this, a deep bore was put down at Madura, below the cliff and nearer the coast, when an artesian supply of stock water was obtained at a depth of 2101 feet, yielding 31,000 gallons per day.

This was followed later with about 20 bores along the survey line of the proposed railway, which runs east and west about 90 miles inland. These bores were put in at intervals between the 205 mile peg and the South Australian border, and ranged in depth between 323 and 1344 feet. In most instances only stock water was struck at depths varying between 300 and 1300 feet, and the largest estimated supply was about 10,000 gallons per day.

**7. Northern Territory.**—In the Northern Territory, bores to the number of 128 were put down up to 31st December, 1914, 25 belonging to the Commonwealth Government. The cost of construction of the Government bores to that date was £6254. The total depth bored in State bores was 17,600 feet; in private bores 34,694 feet. Maximum depths were 213 feet in State, and 502 feet in private bores, and minimum depths were 110 feet and 128 feet respectively.

## § 2. Irrigation Plants.

**1. General.**—Australia's first experiments in irrigation were made with the object of bringing under cultivation areas in which an inadequate rainfall rendered agricultural and even pastoral occupations precarious and intermittent, and, although these original settlements have for the most part proved fairly successful, most of the States, instead of promoting new settlements in unoccupied regions, are adopting the policy of making existing settlement closer, by repurchasing big estates and large farms, subdividing them into holdings of suitable sizes for cultivation, and selling the land upon easy terms of payment. It is in connection with this Closer Settlement policy that the special value of irrigation is recognised.

**2. New South Wales.**—(i.) *Water Conservation and Irrigation Commission.* The provision of an adequate water supply for other than domestic purposes is essential to the well-being of all primary industries, and particularly in a country liable to dry

seasons which affect extensive areas. A large portion of the State receives an adequate and regular rainfall, but there is a considerable extent of country where all the factors exist which are requisite to success in agricultural pursuits excepting only a constant water supply. The recognition of the fact that the area suitable for cultivation might be extended largely by a comprehensive system of water conservation and irrigation has induced the Government to undertake various detached works and schemes, which will constitute portion of the ultimate irrigation system necessary to serve the whole State.

Water conservation and irrigation works within the State of New South Wales are under the control of the Water Conservation and Irrigation Commission, which consists of the Minister for Agriculture for the time being as Chairman, and two other Commissioners. The works controlled by the Commission include the great Murrumbidgee Irrigation Scheme, the small irrigation settlements at Hay and Wentworth, natural works of water conservation, shallow boring for settlers, and water trusts and artesian bore trusts operating under the Water Act. The Commission has control also of storages and diversions of water by private persons for purposes of water conservation and irrigation.

(ii.) *Murrumbidgee Irrigation Scheme.* The main features of the scheme include the storage dam across the Murrumbidgee to retain the floodwaters, which will be released for use lower down the river during the dry summer months; a movable diversion weir, about 240 miles below the dam, to turn the required amount of water from the river into the main canal; a main canal, leaving the river near the weir; four main branch canals; and a series of subsidiary canals and distributing channels through the area to be irrigated; bridges, checks, regulators and other structures throughout the entire system, and meters for measuring the volume allowed to each farm; towns and villages, also roadways to serve each farm, and a general surface drainage system, are also included in this scheme.

The site of the storage dam is at Burrinjuck, three miles below the confluence of the Murrumbidgee and Goodradigbee Rivers. The dam wall is being constructed of cyclopean masonry and concrete, and when completed will have a maximum height of 240 feet, and will impound the waters in a lake covering 12,740 acres. Ample water is being stored to meet the requirements of the farms already occupied, and to allow of water being drawn off during the summer months to augment the natural flow of the river for the benefit of riparian holders down stream. The reservoir will have a capacity of 33,612 million cubic feet, or 771,641 acre feet, the catchment area being about 5000 square miles, drained by three principal streams—the Murrumbidgee, Goodradigbee, and Yass Rivers—up which the water will be backed, when the dam is full, to distances of 41 miles, 15 miles, and 22 miles respectively. Direct communication between Burrinjuck and the Main Southern railway has been provided by the construction of a 2-foot gauge line from Goondah, a distance of 26 miles.

The diversion weir is situated at Berembé, about 40 miles by river and 19 miles in a direct line above the town of Narrandera. It is founded on a solid granite bar extending across the river, and has a length over all of 270 feet between abutments, divided into a sluiceway 40 feet wide in the clear; a lock chamber, 40 feet wide, capable of taking barges up to 100 feet in length; and 55 channoiné wickets, manipulated from a punt moored up-stream. During the winter freshets the wickets are lowered, thus affording a clear water-way in the river channel.

The main canal branches from the river just above the weir, and, after passing through Narrandera, continues in a north-westerly direction, skirting the hills abutting on the plains. A scheme for enlarging the main canal to double its present capacity (1000 cubic feet per second) has been recommended by the Public Works Committee. The principal canals are the Gogeldrie canal, which off-takes at 47 miles from Berembé, and runs approximately parallel to the Narrandera-Hay railway through the Yanco area, and the Mirrool branch canal, which off-takes at 78 miles from Berembé and supplies portion of the Mirrool area.

The scheme, as described above, applies only to the land on the northern side of the Murrumbidgee River. It was originally intended to provide a canal to supply the land on the southern side, but subsequently it was decided to apply all the water available from the Burrinjuck Dam to the northern areas, sufficient land suitable for irrigation being there available, which, it is anticipated, will be worked profitably in small blocks devoted to mixed farming, dairying, and stock raising, or fruit and vegetable growing, etc. When the areas are fully settled it is estimated that there will probably be nearly 6000 farms and 100,000 people. With the aid of irrigation the soil and climate of these areas are suitable for the production of apricots, peaches, nectarines, prunes, pears, plums, almonds, melons, cantaloups, and citrus fruits, also wine and table grapes, raisins, sultanas, figs, olives, and most varieties of vegetables and fodder crops. Dairying, and pig-raising are already being successfully undertaken by settlers in the areas.

The first area made available for settlement was in the vicinity of Yanco Siding on the Hay railway line. The second, which is situated on the northern side of the Mirrool Creek, is served by an extension of the railway from Barellan to Griffith.

Further areas are being thrown open for settlement as the construction works are completed. Farms varying in size from 2 acres to over 200 acres have been made available. The "water right" or number of "acre feet" of water allotted to each holding is specified when the holding is notified as available for application. An "acre foot" of water means such a quantity, 12 inches deep, as would cover an area of one acre. The cost of water is five shillings per acre foot. The charge for water is reduced during the early years. For the first year the charge is 2s. 6d. per acre foot, thereafter increased annually by sixpence per acre foot until in the sixth and following years the full rate of five shillings becomes payable. The average "all-irrigable" farm is about 50 acres, but to suit the requirements of dairymen and other stock farmers, blocks of larger areas have been made available. These comprise non-irrigable or "dry" areas, in addition to the irrigable portion. Some of these mixed farms are 200 acres or upwards in extent, but the maximum water right allowed in respect of any of these larger farms is 100 acre feet. Additional water may be obtained, if available, by arrangement.

The conditions for the disposal of irrigation blocks are contained in the Crown Lands Consolidation Act of 1913, and Amending Acts. Any person of or over the age of 16 years, if a male, or 18 years if a female (other than a married woman not living apart from her husband under decree of judicial separation), or two or more such persons jointly, may apply for a farm or block. A married woman, not judicially separated from her husband, may, however, if she be not subject to any other statutory disqualification: (a) acquire by way of transfer, with the consent of the Minister, out of her own moneys, a lease within an irrigation area; (b) continue to hold a lease which she held before her marriage; (c) hold a lease which may devolve on her by will or intestacy of a deceased person. The tenure is perpetual leasehold.

The improvement conditions attached to the farm holdings include fencing, planting of trees for windbreaks, construction of dwellings, destruction of noxious plants, and the cultivation of a specified area in each year.

The special reservation of a number of farms for application by returned soldiers is in contemplation. As a preliminary measure a camp has been established on the Mirrool Subdivision, at which it is proposed to employ returned soldiers in the first instance, and thus afford the men an opportunity of gaining an insight into the climatic and other conditions connected with irrigation farming. It is proposed that accepted applicants for this camp shall receive a weekly payment exclusive of their keep, and while in camp they will clear, fence and grade the land, which will ultimately be made available to them for application as irrigation farms. Barracks have been provided, and a camp manager will have direct control thereof.

Subject to such conditions as to security and terms of repayment as the Commission may think fit to impose, settlers may obtain an advance, or have payment of rent or water rate suspended. Such advances are limited to the total amount of funds made available by Parliament for this purpose.

The Government Savings Bank Commissioners have statutory power to make loans upon mortgage of irrigation farm leases, and many settlers have already obtained help from the Bank. Concessions in railway fares and freights are made on New South Wales railways to *bona fide* applicants for land.

Towns and villages have been established at centres of the Yanco and Mirrool irrigation areas; the Commission is empowered to construct streets, and to provide water supply, sanitary and other services.

An up-to-date butter factory is in operation at Leeton. The output at the end of 1917 reached 5 tons per week, from an average of 120 to 130 suppliers. The factory also supplies ice to town residents and settlers. A fruit and vegetable canning factory with a rapidly increasing output has also been provided, which purchases vegetables and fruits grown by the settlers. A bacon factory and abattoirs have been erected at Yanco, where about 300 pigs, including a considerable number from other districts in the Riverina outside the irrigation areas are treated weekly, and where stock for butchers is slaughtered for local consumption.

To assist settlers on the Mirrool area, which is situated over 30 miles from Leeton, a small cheese factory has been opened at Griffith. A good marketable cheese is being produced. As an adjunct to the canning factory, a pulping plant has also been installed at Griffith.

One of the most important departmental undertakings on the irrigation areas is undoubtedly the State Nursery. For some years past the Leeton Nursery has been supplying trees to settlers, and in 1916 a second nursery was established at Griffith. Every effort is made to supply only the very best trees, free from disease, and to ensure this, as much use as possible is being made of budding wood from proven trees in the Leeton Nursery, and at the Yanco Experiment Farm.

The Department of Agriculture, which controls the Yanco Experiment Farm, has also established at Griffith (Mirrool irrigation area), a Viticultural Nursery for the propagation of vines on phylloxera resistant stocks. These stocks are intended not only for the supply of settlers on the areas, but for vigneron in all parts of the State.

An electric power station has been erected near Yanco Siding; electric light and power are supplied to the various factories, business people, and residents of Leeton and Yanco, and the supply is also available for settlers when the number of applicants in any centre warrants the connections being made.

On the 31st December, 1917, 831 farms were held, representing a total area of 36,433 acres. In addition, 135 town land blocks were held under lease.

In the matter of cultivation, the following particulars indicate the extent of the work performed by the settlers:—3112 acres under stone fruit, 346 under pome fruit, 1656 under citrus fruits, 1171 under vines, and 327 acres under mixed fruits. Particulars as to the area under fodder crops in 1917 are not available. However, in 1916, the area under cultivation in this regard amounted to 16,347 acres. The estimated population of the irrigation areas is about 5000.

(iii.) *Other Irrigation Settlements.* Irrigation settlements have been established at Curlwaa near Wentworth, and at Hay. These were in 1913 placed under the control of the Water Conservation and Irrigation Commission.

(a) *Curlwaa Irrigation Area.* The Curlwaa irrigation area embraces 10,600 acres, of which 1363 acres have been subdivided into 94 irrigable blocks. On 31st December, 1917, 85 blocks, comprising 1296 acres, had been taken up, in areas of  $1\frac{1}{2}$  to 37 acres. There are also 90 non-irrigated holdings of from  $\frac{1}{4}$  to 336 acres, comprising 7104 acres, of which 82 blocks, representing an area of 6958 acres, were in occupation on the above date. An area of 1290 acres has been reserved as a common. The balance of the area is made up of road and channel and other reserves. During 1916-17 approximately 1100 acres were under cultivation, the greater part being devoted to fruit, including oranges, peaches, apricots, nectarines, pears, grapes, sultanas and currants. The area planted to fruit was 776 acres, of which about 600 acres were in bearing. It has been

proved beyond doubt that the Curlwaa soil is eminently suited to the growth of citrus and other kinds of fruit, and some of the finest oranges grown in New South Wales are produced on this area.

The estimated weight of dried fruits produced on the Curlwaa area in the year 1916-17 was 7022 cwt., the principal yields being sultanas, 2581 cwt.; peaches, 1423 cwt.; currants, 1404 cwt. In the previous year the product was 5955 cwt.; in 1914-15 it was 3178 cwt.; in 1913-14, 5118 cwt.; and in 1912-13, 4247 cwt. The heaviest crops have been sultanas and currants. The value of the dried fruit production for the twelve months ending 30th June, 1917, is estimated at not less than £20,000; in addition to which the area produced fresh fruit, crops and other produce of the value of some thousands of pounds.

The pumping machinery consists of a suction-gas plant, supplying two engines of about 55 brake horse-power each, working two centrifugal pumps, with an average combined capacity of about 4600 gallons per minute. With eight pumpings during the 1916-17 season, 89,243,000 cubic feet of water were supplied. The length of the main channels is about 8 miles 55 chains. The land may be leased for periods not exceeding thirty years, the annual rent at present varying from 1s. to 10s. per acre. The rate for water is fixed from time to time by the Commission, and is at present, except in a few special cases, 20s. per acre per annum. Each lessee is entitled to receive a quantity of water equivalent to a depth of 30 inches per annum, limited to 4 inches in any one month.

(b) *Hay Irrigation Area.* The Hay irrigation area consists of about 4160 acres, and previous to 1913 was controlled by a Trust appointed in 1897. On 31st December, 1917, the area held and used for irrigation purposes was 1002 acres, in 105 blocks of from 3 to 34 acres. The term of lease is generally 30 years, and the annual rental from 5s. to 12s. per acre. In addition, there was at that date an area of 2040 acres of non-irrigated land taken up in 43 blocks as permissive occupancies. The water rate is fixed from time to time, and during 1917 was £1 per acre per annum. The pumping machinery is of similar type to that at Curlwaa, the capacity of the pumps being 4000 gallons per minute. During 1916-17 season 90,182,240 cubic feet of water were pumped. Dairying is the principal industry; the cultivation of fruit is very limited.

(iv.) *Projected Irrigation Schemes.* The Water Conservation and Irrigation Commission are investigating schemes for storing water for the purpose of irrigation on the Darling, Lachlan, Macquarie, Hunter, Namoi, Peel and Warragamba Rivers.

(a) *Murray River.* An investigation is being made into the manner in which the New South Wales proportion of the Murray waters can be most profitably applied, but as yet no conclusion has been reached.

(b) *Darling River.* A preliminary investigation has been made of the Darling River, which shews that the most suitable site for the storage of large volumes of water is in the lake system to the east of the river, comprising Lakes Boolaboolka, Ratcatcher, and Victoria, and a number of other lakes (seventeen in all) fed from the river in high floods from the Talyawalka Creek, which takes off from the river about 260 miles above Menindie. Further investigation is required to determine the area which can be commanded from this storage. The question of establishing a small irrigation area, by direct pumping from the river, in the vicinity of Menindie, has also received attention.

(c) *Lachlan River.* The construction of a storage reservoir at Wyangala, below the confluence of the Abercrombie River, has been investigated with the intention of affording water in the river channel for pastoral purposes and for the irrigation of small areas along the river banks by pumping. A proposal is also being investigated for the increase of the storage in Lake Cudgellico, which is fed from the Lachlan River, and for the pumping thence of the water for the irrigation of an area of about 5000 acres adjacent to the lake. The possibility of regulating the amount of water lost in numerous effluent creeks is being considered, so that the best use may be made of the Lachlan River water.



(d) *Macquarie River.* The construction of a storage reservoir has been proposed on the river at Burrendong, below the confluence of the Cudgegong River, for the purpose of affording water by gravitation for the irrigation of certain lands to the west of Narromine. Smaller schemes for the construction of storage dams at White Rock, and on Campbell's River, at Bathurst, have also received consideration. The run-off from this catchment is somewhat uncertain, and before giving consideration to the construction of any State irrigation scheme, further investigation is necessary.

(e) *Hunter, Namoi and Peel Rivers.* Pumping by private irrigators under the Water Act is increasing at such a rapid rate that in the case of some of the rivers, such as the Peel and the Hunter, it will not be possible to supply the pumps in dry seasons until head storage works have been constructed. Surveys have been completed for storage dams on the Hunter and Peel Rivers and for a dam on the Namoi River above Manilla.

(f) *Warragamba River.* The Warragamba project will serve the dual purpose of amplifying the Sydney Water Supply and irrigating the best lands in the Nepean Valley. The rate of increase in the population of the metropolitan area during recent years, if maintained, will in a short space of time cause the consumption of water to overtake the capacity of the present catchment area of the Sydney water supply, and the next available source of supply will then be the Warragamba River, a scheme for the storage of water from which has been prepared. It is proposed to construct a large storage dam capable of supplying about 200,000,000 gallons daily for water supply, irrigation and trade purposes, and for compensation water. Surveys have been made and details are being prepared of this scheme, which has been submitted to the Public Works Committee.

(v.) *Water Rights.* The Water Act 1912 consolidates the Acts relating to Water Rights, Water and Drainage, Drainage Promotion and Artesian Wells. Part II. of the Act vests in the Crown the right to the use, flow and control of the water in all rivers and lakes which flow through or past, or are situate within the land of two or more occupiers. It abolishes "riparian rights," and establishes a system of licenses for works of water conservation, irrigation, and drainage. Prior to the passing of the Act relating to water rights, such works on creeks and rivers, constructed by private individuals, were liable to destruction by any person who considered their existence opposed to his interests. Now, under the Water Act, a severe sentence of imprisonment may be imposed in respect of interference with any work for which a license has been granted. The security thus provided has stimulated the construction of a better class of works for irrigation and the other purposes mentioned. Notwithstanding the generally favourable season experienced throughout the State, which lessened the necessity for irrigation during the year ended 31st December, 1917, 95 applications were made for new licenses, and 62 for the renewal of existing licenses, and at the end of the year 1206 licenses were in force.

(vi.) *Water Trusts and Bore Trusts.* Part III. of the Water Act 1912 provides for the supply of water either for irrigation, stock, or domestic purposes, and for drainage, the liabilities on which are repaid to the Crown, with interest spread over a period of years, and the works are administered by trustees appointed from among the beneficiaries under the Act; except in the case of trusts in the Western Division, where the Western Land Board is appointed as trustee. For the supply of water, trusts have been constituted in connection with (a) seventy-six artesian wells; (b) eight schemes for the improvement of natural off-takes of effluent channels, for the purpose of diverting supplies from the main rivers; (c) in four instances for the construction of weirs across stream channels (one has since been dissolved); and (d) two pumping schemes, one from natural watercourses, and one from a well. The total area included within these trusts amounts to 6,809,537 acres.

3. *Victoria.*—(i.) *Classification of Works.* The Water Conservation Works in Victoria divide themselves into irrigation works proper, and those providing mainly a domestic supply, such as the works for the supply of Melbourne, controlled by the Melbourne and Metropolitan Board of Works; the Coliban, Wonthaggi, Broken River, Kerang Lakes, Naval Base and Mornington Peninsula, and Mallee Supply Works, administered by the State Rivers and Water Supply Commission, and other works for domestic supply controlled by Water Works Trusts or Municipal Corporations. With the exception of the works administered by the Commission, particulars as to these works will be found in the section on "Local Government" in this volume.

(ii.) *Works Controlled by the Commission.* All the irrigation schemes (with the exception of that of the First Mildura Irrigation and Water Supply Trust), and the more important domestic and stock water-supply works in rural districts, are vested in and controlled by the State Rivers and Water Supply Commission, a body composed of three members, which was created by the Water Act 1905, now incorporated in the Water Act 1915.

(a) *Irrigation Schemes.* This division comprises the schemes constructed and under construction for the supply of water to some seventeen irrigation districts. Up to 1906 these schemes were controlled by local Trusts, which had obtained the moneys for their construction on loans from the State. By the Water Act 1905 all local control was abolished except in the case of Mildura, and the districts were transferred to the State Rivers and Water Supply Commission. Since that date the Government has adopted a vigorous irrigation policy, and the capital expenditure at 30th June, 1917, on water supply in the irrigation and water supply districts under the control of the Commission, and at Mildura, was £3,980,000. The irrigation works draw their supplies mainly from headworks constructed on the Murray, Goulburn, and Loddon Rivers. The cost of these headworks, which now stands at £1,123,000, is not debited to any particular districts, but is borne by the State. The extent of land under irrigated culture, for all kinds of crop, is 258,000 acres, which, notwithstanding the abnormally wet season, was within 3000 acres of the average area irrigated in the previous six years.

The following particulars of the principal schemes will be of interest, and will convey some idea of the extent to which the one-time arid northern portion of this State is now insured against droughts like that of 1902, when the combined capacities of its storages for irrigation by gravitation were only 75,000 acre feet, and of its pumping plants, 400 acre feet per day.

*Goulburn Scheme.* The Goulburn River Gravitation Scheme (see map on page 553) is the largest of Victoria's irrigation enterprises. It serves, either for irrigation or domestic and stock purposes, 850,000 acres of land in the valleys of the Goulburn, Campaspe and Loddon Rivers. The present headwork of the system is a diversion weir on the Goulburn River, near Nagambie. It is constructed of concrete masonry, with 21 flood gates, which raise the up-stream water level 10 feet above the concrete crest. These gates are lowered, during high stages of river flow, to provide a clear waterway for the discharge of floods. The weir has a total length, including channel regulators, of 925 feet, and a height of 50 feet. The water is diverted by two main channels, the eastern carrying 330 cubic feet per second (660 acre feet per day) a distance of 33 miles to the country north of the Broken River, while the western, which has a capacity of 1700 cusecs,\* and a length of 23 miles, is used to feed distributaries of the Rodney District and to fill Waranga Reservoir, the present principal storage basin of the scheme. This reservoir, formed by an earthen embankment  $4\frac{1}{2}$  miles long across a natural depression, covers an area of 19 square miles to an average depth of 16 feet, and stores 197,000 acre feet. Works now in progress will raise the full supply level of this reservoir by ten feet, and increase the storage capacity to 330,000 acre feet. Two main channels issue from this reservoir, the Waranga-Rodney, of 250 cusecs\* capacity, which feeds Rodney distri-

\* Cusecs=Cubic feet per second.

butary channels, and the Waranga-Campaspe-Serpentine, which leaves the reservoir with a capacity of 1000 cusecs, and ends at the Serpentine Creek, 92 miles westward, with a capacity of 200 cusecs. The total length of distributary channels is 1600 miles.

The portion of the State served by this system comprises 19,000 acres east of the Goulburn, 564,000 acres between the Goulburn and the Campaspe, and 267,000 acres between the Campaspe and the Loddon. These areas include the irrigated Closer Settlements at Shepparton, Tongala, Rochester and Dingee (see "Closer Settlement in Irrigation Districts," page 276) in which annual water rights are allotted of not less than one acre foot of water to each acre of irrigable land. They include also the districts formerly controlled by the Rodney and Tragowel Plains Irrigation Trusts, in which districts, generally, the holdings are larger than in Closer Settlement areas. The water rights in these districts are, for lands under intense culture, one acre foot of water to each irrigable acre, and for other irrigable lands, one acre foot to four irrigable acres in the former district, and one to five in the latter. The balance of the area, including Deakin district, while not subject to a compulsory irrigation charge, is provided with a domestic and stock supply, and water is sold for occasional irrigation on application. The amount of the compulsory charge for irrigation water allotted as a "right" is at present 6s. per acre foot in the two districts—Tragowel Plains and Dingee—farthest removed from the sources of supply, and 5s. per acre foot elsewhere. With a view of meeting the increasing demand for water in dry seasons, and providing an irrigation supply for other suitable lands, the Commission is constructing a storage reservoir on the Upper Goulburn, just below its junction with the Delatite River, at what is known as the Sugarloaf site. The dam, which is 2550 feet in length, consists of a diaphragm wall of reinforced concrete, built from bed rock (in some places 75 feet below natural surface) to crest level 135 feet above the river bed; a wall of clayey material on the upstream side of the diaphragm; and supporting masses of rock. This reservoir will submerge an area of 7600 acres, and store about 300,000 acre feet of water, bringing the total capacity of the Goulburn storages to 630,000 acre feet. The foundations of the Sugarloaf structure will permit of the dam being raised, if necessary, to a height of 190 feet above the river bed. This would add 8600 acres to the area submerged, and would increase the storage capacity from 300,000 to 900,000 acre feet.

*Loddon River Scheme.* This also is wholly a gravitation system. The headwork is a regulating weir on the Loddon at Laanecoorie, about 22 miles westerly from Bendigo. This weir is constructed of concrete masonry with "Chaubart" automatic floodgates five feet high for a length of 320 feet, combined with an earthen embankment, the length over all being 940 feet. Its storage capacity is 14,000 acre feet. Other works of the scheme are timber diversion weirs at Serpentine and Kinypanial, 80 and 120 miles downstream respectively, also 160 miles of channels (taken over from several irrigation Trusts in the Boort district) which supply an area of 74,000 acres for domestic and stock purposes and partial irrigation.

*Murray River Schemes.* These comprise both gravitation and pumping schemes. The only wholly gravitation system is that known as the Kow Swamp scheme, which supplies the Kerang irrigation district of some 85,000 acres. The off-take is at Torrumbarry headworks, from which the Gunbower channel diverts water, when the Murray river is five feet above summer level, to the Kow Swamp storage, a natural depression improved so as to hold a volume of 41,000 acre feet. From this reservoir the water is distributed by the Macorna channel (40 miles in length) and about 200 miles of distributaries.

*The Cohuna, Gannawarra, Koondrook and Swan Hill Schemes* are combined gravitation and pumping schemes. The Cohuna-Gannawarra plant consists of two 36 inch and four 39 inch centrifugal pumps—total capacity 280 cusecs; those at Koondrook and Swan Hill, each of 100 cusecs capacity, consist each of two 39 inch centrifugal pumps. The pumped supplies are supplemented at varying stages of river level by the gravitation water.

*The Cohuna, Koondrook and Swan Hill Districts*, comprising 106,000 acres, embrace the irrigated Closer Settlements of the same names. In these districts and that of Gannawarra (comprising 44,000 acres) the quantity of water allotted as a "right" is one acre foot per irrigable acre. The compulsory charge is at present 5s. per acre foot of such water right. In Kerang district—not under a compulsory irrigation charge—water is sold to irrigators on application at a charge not exceeding 3s. per acre foot of water supplied.

*The Nyah Irrigation Area* was occupied in 1894 under village settlement conditions, settlers being allowed up to 50 acres each. Individual attempts at irrigation having proved unsuccessful, a Government scheme was prepared for the whole settlement. A number of settlers surrendered portions of their holdings, which were too large for effective working, and these portions, with adjacent Crown lands, were re-subdivided and made available, under the Murray Settlements Act 1907, on easy terms. Water is diverted from the Murray by a high lift pumping plant—capacity 25 cusecs—consisting of two coupled 24 inch turbine centrifugal pumps. The settlement now contains 141 holdings, of an average area of 20 acres, of which 128 are settled. Water rights are apportioned to these holdings on the basis of  $2\frac{1}{2}$  acre feet of water for each irrigable acre, and the compulsory charge is at present 14s. per acre foot of such water rights. The land is devoted mainly to vineyards and orchards, and the settlers, taken as a whole, are making good progress.

*The Merbein Irrigation Area* (formerly known as White Cliffs) comprises 6200 acres of what, eight years ago, were Crown lands. This settlement now contains 239 holdings, averaging 26 acres each, so highly improved as to sell, as orchard properties, at prices up to £200 per acre. The water is pumped from the Murray by a plant of four turbine centrifugal pumps—lift 96 feet, capacity 50 cusecs—and one 36 inch high lift centrifugal pump, capacity 50 cusecs. The land settlement conditions and water rights apportioned are the same as at Nyah, but the compulsory charge is at present 15s. per acre foot. Last year's production at Merbein comprised some 2600 tons of dried fruits, 4000 tons of distillery grapes, and 6600 cases of fresh fruits, of a total value of £185,000, an average of about £30 per acre occupied.

*Werribee River Schemes.—Bacchus Marsh.* The headwork of this gravitation scheme is a reservoir of 15,000 acre feet capacity on Pyke's Creek, a tributary of the Werribee, the in-take from the creek catchment being supplemented by a tunnel through a dividing spur, which taps the Werribee River near Ballan. The dam, 1000 feet in length and 100 feet in height, is built of earth, with dwarf concrete core. The area of the district is 6600 acres—half of which is irrigable—and includes some of the richest lucerne land in the State. The annual water right is one acre foot per irrigable acre, and the present compulsory charge is £1 per acre foot of such right. The higher portion of the district receives a supply for domestic and stock purposes.

*Werribee.* This is another gravitation scheme on the same river. The headwork is a reservoir at Melton, immediately below the Bacchus Marsh district. The dam is of earth, with dwarf concrete core. Its length is 600 feet, height 100 feet, and the storage capacity of the reservoir 17,000 acre feet. A diversion weir at Werribee, 71 miles downstream from the reservoir, a main channel therefrom, and the usual distributaries and appurtenant works, complete the scheme. The irrigation district comprises some 7000 acres of first-class land, being the irrigable portion of the Werribee Closer Settlement Estate, which is within 20 miles southwesterly of Melbourne. Most of this land is settled, and the balance is held for discharged soldiers. The water right allotment is one acre foot per irrigable acre, and the charge at present is 10s. per acre foot. The non-irrigable portion of the estate, containing about 13,000 acres, is supplied with water for domestic and stock purposes.

(b) *Domestic and Stock Schemes.* The second division takes into account the schemes constructed and under construction for the supply of water for domestic and stock purposes, the capital expenditure on which at 30th June, 1917, was £4,951,000.

The area of country lands artificially supplied with water for these purposes is nearly 21,000 square miles. The number of towns supplied, exclusive of the City of Melbourne and its suburbs, is 154, serving an estimated population of 293,000. In addition to the Commission's districts, some large areas are still administered by local authorities.

The principal scheme in this division is that known as the *Wimmera-Mallee Gravitation Channel System*. This comprehensive scheme of works will compare favourably, it is believed, with any similar individual scheme, for domestic and stock service, in any part of the world. The main supply is drawn from three reservoirs in the catchment area of the Wimmera River, at the foot of the Grampians Ranges, viz.:—Lake Lonsdale, Wartook, and Fyans Lake. A fourth—Taylor's Lake—now under construction, is nearing completion. The reservoirs in use have a combined storage capacity of 86,000 acre feet. The completion of the works in progress, and other minor works, will bring this total to 122,000 acre feet. The water is conveyed, partly by natural water-courses, but chiefly by artificial channels, aggregating over 3600 miles in length, over farming districts comprising about 8500 square miles, approximately one-tenth of the whole State (see map on page 554).

Another scheme in this division which calls for mention here is the *Naval Base and Mornington Peninsula Scheme*. This comprehensive scheme—prepared at the request of the Naval Authorities—is for the supply of water to the Flinders Naval Base, and for the service of fifteen townships en route, including Berwick, Beaconsfield, Pakenham, Aspendale, Chelsea, Carrum, Frankston, Mornington, and Hastings. An ample supply of water is obtainable from the headwaters of the Bunyip River, which drains some 30 square miles of forest country above the point of off-take. The works are already well advanced, those portions which more directly affect the Naval Base being expedited so as to give water to that important area before the end of the present year.

(iii). *Mildura*. The creation of an irrigation colony at Mildura was the outcome of a visit by Mr. Deakin to California in 1885, when Messrs. Chaffey Bros. were invited to visit Victoria, with the object of founding a similar settlement to those which they had been largely instrumental in establishing in California.

Active operations were commenced in 1887, since which date marvellous progress has been made, instanced in the fact that, originally used as a sheep run and carrying one sheep to every thirty acres, the dried fruit harvested from 12,000 acres in 1916 was valued at £683,000 gross.

Water is pumped and supplied under Act of Parliament by the first Mildura Irrigation Trust from the river Murray by two pumping stations, viz.:—(1) into a billabong, and thence to pumps lifting to various levels, and (2) to a comparatively small area adjacent to the town.

The length of the Trust's main and subsidiary channels is 280 miles. For the year ending 30th June, 1917, the Trust's receipts aggregated £29,167, and its expenditure £22,654. For the same period the number of water acres supplied was 29,966.

Loans (balance) advanced to the Trust by the Government for the purpose of improving the plants and channels, etc., amounted at 30th June, 1917, to £82,595, exclusive of the sum of £10,797 (balance) arrears of interest.

The area of the settlement is 45,000 acres, of which 12,000 acres are under intense culture, vines predominating.

4. *Queensland*.—The main irrigation works in Queensland are as follows:—(a) those at Ayr, which utilise the waters of the Burdekin River, and shallow wells on its banks; (b) those at Bingera, near Bundaberg, which utilise water pumped from the Burnett River just above the point of meeting of the salt and fresh waters, and (c) those at Fairymead, which utilise water pumped from a number of shallow spear wells sunk on the alluvial flats on the north side of the Burnett River and about six miles from Bundaberg. There were 741 irrigators in the State in 1916, chiefly farmers and graziers, and the area irrigated was 10,886 acres.

5. *South Australia.*—(i.) *The Renmark Irrigation Trust.* The Renmark Irrigation Trust was established in 1893 on similar lines to Mildura, but on a smaller scale. The area of settlement is 21,000 acres, the area under irrigation being 5270 acres. There are also 1000 acres under crop for hay. The dried fruit pack for 1917 was 2350 tons, green fruit 2300 tons, and the gross value of the production for that year was £126,000. The population of the town and settlement is 3000. The chief products are sultanas, currants, raisins, oranges, apricots, peaches, pears, olive oil, and grape spirit. There are two distilleries for the manufacture of grape spirit.

(ii.) *Other Waterworks.* A number of country water works are under the control of the Public Works Department. As, however, they are not irrigation works properly so called, but are used for supplying water for domestic purposes, etc., to several towns, no further reference will be made to them in this chapter. (See Section XXVI., *Local Government.*)

(iii.) *Area under Irrigation.* Until 1910, irrigation in South Australia, with the exception of the schemes already mentioned, made little, if any, progress; but in that year an Irrigation and Reclamation Works Department was created, and the preparation of land for irrigation settlements has since been vigorously pursued.

The functions of the Department cover (a) the reclamation of the swamp lands along the lower reaches of the Murray, which are watered by gravitation, and (b) the preparation of the sandy loam highlands for intense culture, the water, after being pumped from the river, being distributed by concrete channels. A number of the small settlements along the river, originally established as village settlements, were taken over by the Department, and the areas available for reticulation extended and offered for occupation. These include Waikerie, with an irrigable area of 2515 acres, in addition to 4372 acres of "dry" land; Kingston with 415 acres of irrigable and 3096 of "dry" land; and Moorook with 2950 acres, of which 1200 acres can be irrigated. The new areas commenced by the Department were Berri, where 3043 acres of irrigable land and 2364 acres of "dry" land have been allotted to 160 settlers. Further pumping plants have been installed, which will enable this settlement to be extended to 9000 acres of irrigable land and 11,000 acres of "dry" land. The adjoining area of Cobdogla, the preparatory survey of which has been completed, contains approximately 30,000 acres of first-class land suitable for intense culture, in addition to 111,000 acres of "dry" land. The first section of this area, comprising about 2000 acres, which can be watered from a lift of about 20 feet, is now available for allotment. When completed, this settlement will be supplied from four distinct pumping plants, two on the River Murray at different points, and two on Lake Bonney at the north and south ends respectively. This lake is fed from the river by means of Chambers' Creek, and comprises an area of 4000 acres. At Cadell an area of 2700 acres has been acquired, 1200 acres of which are first-class irrigable land; this is now being prepared by the Department for settlement. The reclaimed swamps, which have already been completed and allotted, comprise 3600 acres, while other swamp lands of about 3200 acres are in course of reclamation.

A recent innovation has been the preparation of joint schemes of reclaimed and irrigable land, the swamps being reclaimed and the adjoining sandy loam highlands channelled, thus enabling the adoption of dairying, fodder growing, and stock raising in conjunction with horticulture. The areas comprise, Mypolonga, 1700 acres of reclaimed land, 1254 acres of irrigable, and 1481 acres of "dry" land; Wall, 619 acres of reclaimed land, 160 acres of irrigable and 208 acres of "dry" land; Pompoota, 560 acres of reclaimed land, 250 acres of irrigable land, and 3277 acres of "dry" land; Jervois, 990 acres of reclaimed land, 290 acres of irrigable land, and 260 acres of "dry" land; Swanport, 116 acres of reclaimed and a similar area of irrigable land; Neeta, 560 acres of reclaimed, 1820 acres of irrigable, and 2348 acres of "dry" land. Mypolonga and Wall have been allotted, the latter to returned soldiers, and Pompoota is being utilised as a training farm for returned soldiers. The other areas have yet to be allotted for settlement. The reclaimed lands consist of peaty soils composed of rich river silt, and are eminently

suited for the growth of lucérne and other fodders, onions, potatoes, etc. The soils of the irrigable lands have already proved their suitability for the production of peaches, apricots, nectarines, oranges, lemons, figs, and grapes.

All lands are allotted under perpetual lease, and blocks are surveyed into areas varying up to 50 acres of irrigable or reclaimed land. No lessee is permitted to hold more than 50 acres of irrigable or reclaimed land or of both irrigable and reclaimed, except that in the case of a partnership 50 acres may be allotted for each member of the partnership up to a maximum of 150 acres. In addition, areas of non-irrigable land are allotted to lessees of irrigation and reclaimed blocks for dry farming. The rentals of the blocks are fixed by the Land Board immediately prior to the land being offered for application. For the reclaimed land an amount is charged sufficient to cover interest on cost of land and reclamation, while for the irrigable land the rent is based on the unimproved value of Crown lands, or to cover interest on cost of repurchased lands.

On the irrigable land, the water rate has been fixed at 30s. per acre per annum for the first four years, after which an amount will be charged sufficient to cover actual cost of supplying water, and interest on pumping plant, channels, etc. On the reclaimed lands an amount is charged to meet annual management, drainage, and maintenance expenses. A sliding scale covers the rent on all land, and water rates on the irrigable land for the first four years, *i.e.*—first year, one-quarter of the rent and water rate; second year, one-half; third, three-quarters; fourth and afterwards, full amount per acre. On the irrigable lands, each lessee is entitled for the water rate to 24 acre inches per annum, supplied in six irrigations; special irrigations and domestic supplies are supplied at times other than during the general irrigations, at a nominal cost. On the reclaimed lands, water is supplied regularly by reticulation from the river.

The Department assists settlers by fencing, clearing, grading and constructing irrigation channels and tanks. Such improvements are undertaken up to a value not exceeding £15 per acre of the irrigable area in each lessee's block, but before the work is commenced a deposit must be paid equal to 15% of the Department's estimated value of such improvements. The total cost of the work, less deposit, is treated as a loan to the lessee, and is repayable in twenty equal annual instalments after the expiration of five years, or at any shorter period if desired by the lessee; current rate of interest being charged. Any lessee is permitted to accept the contract for carrying out his own improvements according to the specifications and estimates of the Department, up to the maximum amount per acre, as mentioned above. Advances can be obtained from the Advances to Settlers Board for the purchase of stock, discharging mortgages, erecting permanent buildings, and other improvements, the first £400 being advanced on the fair estimated aggregate value of the settler's lease, and any improvements already made on the holding, and those in course of being made thereon. Any loan beyond £400 would not exceed 15s. in the £ of the fair estimated value of the improvements already made.

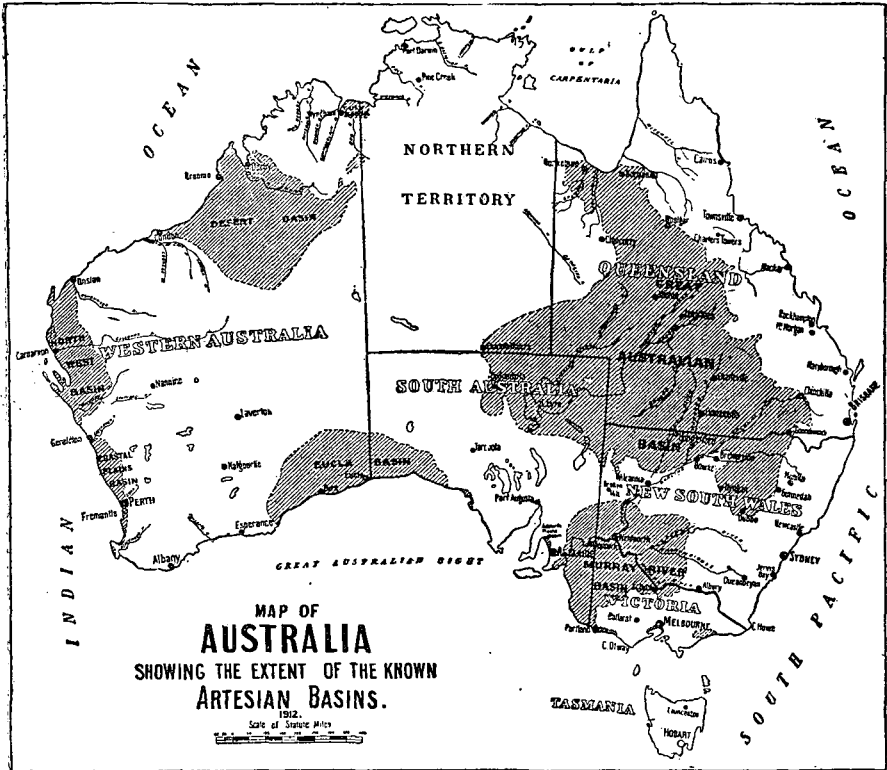
In the section dealing with Closer Settlement (page 271) the subject of irrigation areas in South Australia has already been referred to.

**6. Western Australia.**—An Irrigation Act has been brought into force providing for the constitution of irrigation districts. At Harvey the works for irrigating about 4000 acres devoted to fruit growing, principally oranges, were completed, and formally opened on the 21st June, 1916. A scheme is now in preparation for irrigating a further area of about 4600 acres in the same district.

Numerous small private irrigation schemes are in full operation on many of the south-west rivers in connection with fruit, fodder, and potato growing.

**7. Murray Waters.**—The negotiations which took place prior to the passing of the River Murray Waters Act as to the relative State rights of New South Wales, Victoria and South Australia to the waters, are given in detail in previous issues of this book. (Year Book No. 9, page 537.)

MAP SHEWING THE POSITION AND EXTENT OF THE "AUSTRALIAN ARTESIAN BASINS."



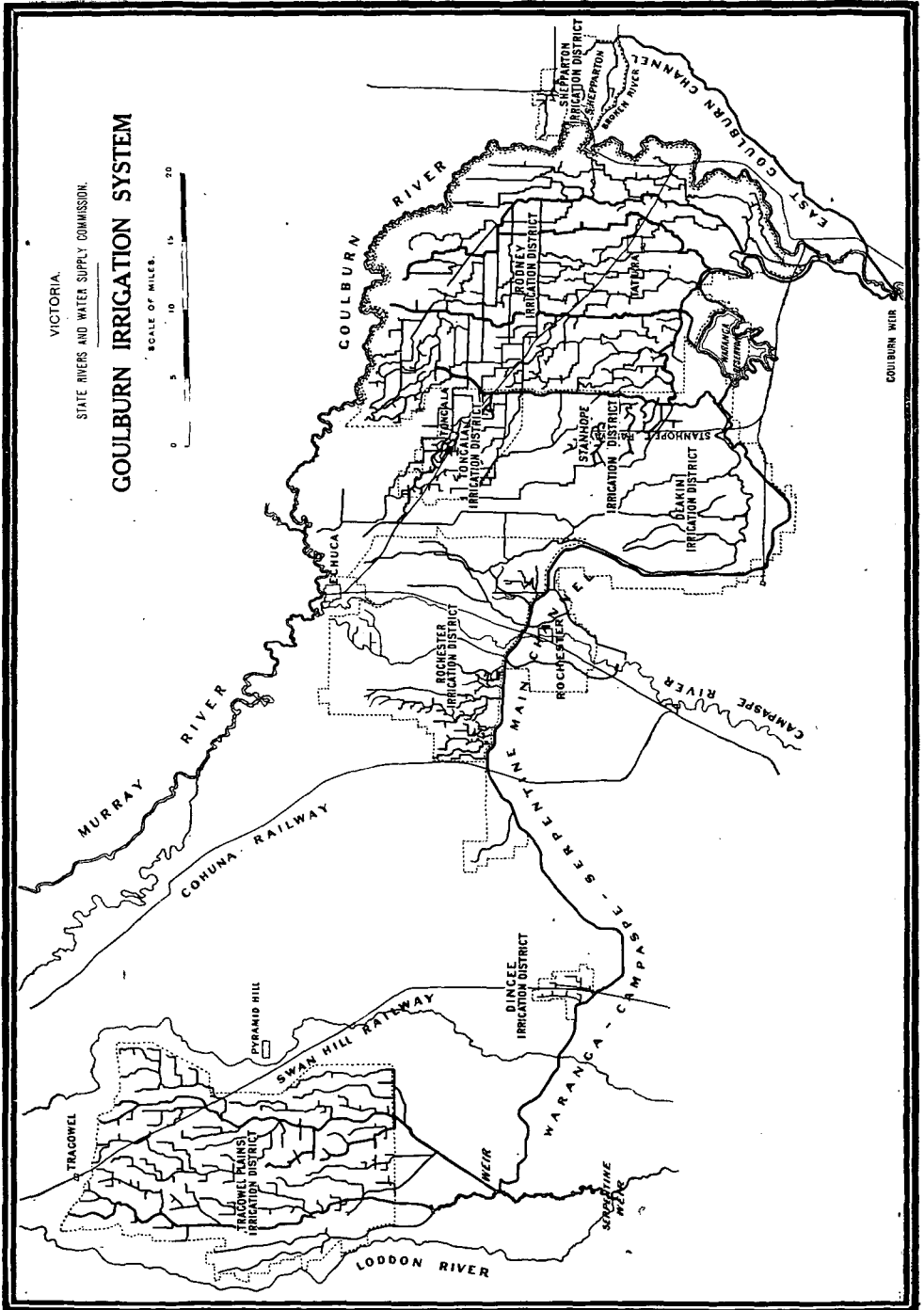
This map was prepared by the Interstate Conference on Artesian Water, held in Sydney during May, 1912. It contains the latest facts relative to the various artesian basins of the Australian continent. Of these basins the most important is the Great Australian Basin, which is about 569,000 square miles in extent, viz.:—About 376,000 square miles in Queensland, 90,000 square miles in South Australia, 83,000 square miles in New South Wales, and 20,000 square miles in the Northern Territory. The Murray River Basin extends over South-Western New South Wales, North-Western Victoria, and South-Eastern South Australia. The Western Australian Basins fall naturally within five groups, viz.:—The Eucla Basin, the Coastal Plains Basin, the North-West Basin, the Desert Basin, and the Gulf Basin. (See also pages 532 to 539.)



VICTORIA.  
STATE RIVERS AND WATER SUPPLY COMMISSION.

# GOULBURN IRRIGATION SYSTEM

SCALE OF MILES.  
0 5 10 15 20





On the 31st January, 1917, the River Murray Waters Act was brought into operation. The principal provisions of this Act are that a storage of one million acre feet is to be created by the construction of a dam on the Upper Murray above Albury. This work is to be constructed by New South Wales and Victoria conjointly. A joint investigation has been in progress by the two States interested for some years past, with a view to determining the most suitable site for the construction of this large work, but although a number of sites have been tested, no determination has yet been arrived at.

From the storage dam to Echuca, the river will not be locked, but from Echuca to Blanchetown in South Australia, 26 weirs and locks will be constructed, affording a navigable depth at all times for vessels drawing 5 feet of water. The weirs and locks above Wentworth will be constructed by Victoria and New South Wales jointly, and below Wentworth by South Australia. The Act also provides for the construction of locks and weirs in the Murrumbidgee River from its junction with the Murray River to Hay, or alternatively, for an equivalent expenditure of £540,000 upon locking the Darling River from its junction with the Murray upwards.

A system of storage is to be provided in Lake Victoria, to be controlled by South Australia.

The total expenditure involved by the construction of the works covered by the Act is estimated at £4,663,000, of which the Commonwealth Government will contribute £1,000,000, and the three States interested, the balance in equal shares.

The effect of constructing the River Murray storage would be to insure at all times sufficient flow below Albury to permit of diversions for irrigation, and stock and domestic supplies, and also to make good the losses in the river due to seepage, evaporation, and lockages. The Act provides that, subject to certain conditions, New South Wales and Victoria shall share the regulated flow of the river at Albury, and shall each have the full use of all the tributaries of the River Murray within its territory below Albury, with the right to divert, store and use the flows thereof. It is estimated that the New South Wales regulated river flow after the construction of the Upper Murray storage will amount to at least 120,000 acre feet per month at Albury during the irrigation season, except in a period of phenomenal drought, such as 1902 and 1903. The River Murray Commission has been constituted, and is making investigations regarding works to be carried out.

## SECTION XV.

## COMMERCE.

## § 1. Introductory.

NOTE.—From the 1st July, 1914, the Trade Year, which was formerly the Calendar Year, was altered to coincide with the Fiscal Year (July to June).

1. **Constitutional Powers of the Commonwealth in regard to Commerce.**—The powers vested in the Commonwealth Parliament by the Commonwealth Constitution Act with respect to oversea trade and commerce will be found on page 23 (sub-section 51 (i.) and pp. 29 to 31 (sub-sections 86-95) of this volume.

## § 2. Commonwealth Legislation affecting Foreign Trade.

1. **Customs Act 1901 (No. 6 of 1901).**—"An Act relating to the Customs," assented to on the 3rd October, 1901, came into operation by proclamation on the 4th October, 1901. This provided for the establishment of the necessary administrative machinery for all matters pertaining to the customs, and prescribed, *inter alia*, the manner in which customs duties shall be computed and paid. It did not, however, determine the rates thereof.

During the interval between the inception of the Commonwealth, viz., on 1st January, 1901, and the coming into operation of the Customs Act 1901, the Customs Acts of the several States were administered by the Executive Government of the Commonwealth, under section 86 of the Constitution.

2. **Customs Tariff Act 1902 (No. 14 of 1902).**—The first Commonwealth Customs Tariff imposing uniform rates of customs duty in all the States was introduced in the House of Representatives on the 8th October, 1901. "An Act relating to Duties of Customs," assented to on the 16th September, 1902, made provision that uniform duties of customs specified in the tariff schedule should be imposed from the 8th October, 1901. From this date trade between the States became free, with, however, the exception, under section 95 of the Constitution Act, of the right of Western Australia to levy duty on the goods from other States for five years. [Repealed by the Customs Tariff Act 1908 (No. 7 of 1908).]

3. **Sea Carriage of Goods Act (No. 14 of 1904).**—"An Act relating to the Sea Carriage of Goods," assented to on the 15th December, 1904, to commence on the 1st January, 1905, defines the responsibility of shipowners, charterers, masters, or agents in regard to goods carried.

4. **Secret Commission Act 1905 (No. 10 of 1905).**—"An Act relating to Secret Commissions, Rebates, and Profits," assented to on the 16th November, 1905, provides that—"Any person who, without the full knowledge and consent of the principals directly or indirectly (a) being an agent of the principal, accepts or obtains, or agrees or offers to accept or obtain, from any person, for himself, or for any person other than the principal; or (b) gives or agrees to give or offers to the agent of a principal, or to any person at the request of an agent of the principal, any gift or consideration as an inducement or reward for any act done or to be done, or any forbearance observed or to be observed, or

any favour or disfavour shewn or to be shewn in relation to the principal's affairs or business or on the principal's behalf, or for obtaining or having obtained, or aiding or having aided to obtain for any person an agency or contract for or with the principal, shall be guilty of an indictable offence."

**5. Commerce (Trade Descriptions) Act 1905 (No. 16 of 1905).**—"An Act relating to Commerce with other Countries," assented to on the 8th December, 1905, and brought into operation by proclamation on the 8th June, 1906, gives power to compel the placing of a proper description on certain prescribed goods, or on packages containing the same, being imports or exports of the Commonwealth.

**6. Australian Industries Preservation Act 1906 (No. 9 of 1906).**—"An Act for the Preservation of Australian Industries and for the Repression of Destructive Monopolies," assented to 24th September, 1906, provides that any person or any corporation making or engaging or continuing in any combination "with intent to restrain trade or commerce to the detriment of the public or with intent to destroy or injure by means of unfair competition any Australian industry the preservation of which is advantageous to the Commonwealth, having due regard to the interests of producers, workers, or consumers," or any person or corporation monopolising or attempting or conspiring to monopolise any part of the trade of the Commonwealth with intent to control, to the detriment of the public, the supply or price of any service, merchandise, or commodity, is guilty of an offence. (Amended, see Acts No. 5 of 1908 and No. 26 of 1909-1910.)

**7. Customs Tariff 1906 (No. 14 of 1906).**—"An Act relating to Duties of Customs" amended the Customs Tariff of 1902 in relation to the duties on harvesters and agricultural implements and machinery and prescribed the prices which were not to be exceeded of Australian harvesters and drills delivered to the purchaser at the railway station or port nearest to the factory where they are made. [Repealed by Customs Tariff Act 1908 (No. 7 of 1908).]

**8. Customs Tariff (South African Preference) 1906 (No. 17 of 1906).**—"An Act relating to Preferential Duties of Customs on certain goods the produce or manufacture of the British Colonies or Protectorates in South Africa which are included within the South African Customs Union," assented to 12th October, 1906, to operate from 1st October, 1906, provides for special preferential rates of duty on certain goods imported from and being the produce of any of the Colonies or Protectorates included within the South African Customs Union.

**9. Australian Industries Preservation Act 1907 (No. 5 of 1908).**—"An Act to amend the Australian Industries Preservation Act 1907," assented to 14th April, 1908, provides additional machinery for procuring evidence of offences against the principal Act.

**10. Customs Tariff 1908 (No. 7 of 1908).**—"An Act relating to Duties of Customs," assented to 3rd June, 1908, repeals Section 5 of the Customs Tariff 1902 (No. 14 of 1902) and the schedule of that Act and the whole of the Customs Tariff 1906 (No. 14 of 1906) as from 8th August, 1907, and imposes new rates of Customs Duties. This Act provides preference rates of customs duties on certain "goods the produce or manufacture of the United Kingdom."

**11. Customs Tariff Amendment Act 1908 (No. 13 of 1908).**—"An Act to amend the Tariff Act of 1908," assented to 10th June, 1908. The purpose of this Act is merely to remove possible doubt as to the intention of the original Acts.

**12. Australian Industries Preservation Act 1909 (No. 26 of 1909).**—"An Act to amend the Australian Industries Preservation Acts 1906-1907" formally repeals Sections 5 and 8 of the parent Act, which were declared by the High Court to be *ultra vires*; also provides that, in relation to trade and commerce with other countries or among the States, the payment of rebates, or the refusal to sell, "either absolutely or except upon disadvantageous conditions," with the purpose of promoting exclusive dealing, shall be an offence.

13. **Customs (Interstate Accounts) Act 1910 (No. 9 of 1910).**—Repeals Sections 272 and 273 of the Customs Act 1901. These sections relate to the passing of dutiable goods from one State to another State of the Commonwealth, and their repeal was consequent on the termination of the book-keeping system of accounts between the Commonwealth Government and the Governments of the States, in favour of a system of payments based on population.

14. **Australian Industries Preservation Act 1910 (No. 29 of 1910).**—“An Act to amend the Australian Industries Preservation Act 1906-1909.” This Act removes from the principal Act the obligation to prove *intent* to restrain trade and detriment to the public.

15. **Customs Act 1910 (No. 36 of 1910).**—“An Act to amend the Customs Act 1901” gives the Customs control of all goods for export, the exportation of which is subject to compliance with any condition or restriction under any Act or regulation, extends the machinery provisions for the prevention of the importation or exportation of goods which are prohibited imports or exports respectively, amends the provisions for the payment of duty under protest, gives the Governor-General power to prescribe the nature, size, and material of the coverings for packages, and the maximum or minimum weight or quantity to be contained in any one package of goods imported or exported, or transported coastwise from one State to another; the condition of preparation or manufacture for export of any articles used for, or in the manufacture of, food or drink by man; the conditions as to purity, soundness, and freedom from disease to be conformed to by the goods for export.

16. **Customs Tariff 1910 (No. 39 of 1910).**—“An Act relating to Duties of Customs,” amends the Customs Tariff of 1908 by more explicit definition of certain tariff items, and by alteration of some rates of duty.

17. **Customs Tariff 1911 (No. 19 of 1911).**—“An Act relating to Duties of Customs,” amends the Customs Tariff 1908-10 by alteration of some rates of duty.

18. **Interstate Commission Act 1912 (No. 33 of 1912).**—In accordance with the provisions of the Commonwealth Constitution Act—Sections 101 to 104 (see page 31 *ante*)—an Act relating to the Interstate Commission was assented to on the 24th December, 1912. This Act provides for the appointment of the Commission, and cognate matters.

19. **Trading with the Enemy Act 1914 (No. 9 of 1914).**—“An Act relating to the control of trade during the war with Germany and Austria-Hungary.” This Act was amended by Act No. 17 of 1914.

20. **Customs Act 1914 (No. 19 of 1914).**—Amends the Customs Act 1901-10 by extending the powers of the Governor-General to prohibit the exportation of goods in time of war.

21. **The Income Tax Assessment Act 1915 (No. 34 of 1915) and Amendment thereto (No. 47 of 1915).**—Provide that “In the case of a person selling goods in Australia on account of a person not resident in Australia, or on account of a company not registered in Australia, the principal shall be deemed to have derived from such sale a taxable income equal to five pounds per cent. upon the price at which the goods were sold. The person selling the goods shall be assessable on the taxable income as the agent for the principal, and shall be personally liable for the payment of the tax to the extent of the tax payable on goods sold by him after the 30th June, 1915. Goods shall be deemed to

be sold in Australia on account of a person not resident in Australia, if any person in Australia receives a commission in respect of the sale of the goods or is paid a salary for obtaining orders for or for influencing the sale of the goods."

**22. Customs Tariff Validation Act (No. 6 of 1917).**—"An Act to provide for the validation of—(1) Collections of Customs duties under tariff proposals introduced into the House of Representatives on the 3rd December, 1914; (2) the remission of Customs duty on wheat as from the 12th December, 1914; (3) the remission of Customs duty on oats as from the 27th February, 1915; and (4) the restoration of the Customs duties on wheat and oats from the 12th November, 1915."

**23. Apple Bounty Act (No. 21 of 1918).**—This Act appropriates from the Consolidated Revenue Fund the sum of £12,000, for the payment, to the grower, of a bounty of 17d. per pound upon the export of apples grown and evaporated in Australia under certain prescribed conditions, and sold to the Imperial Government for delivery between the 1st April and 31st August, 1918.

### § 3. Regulation of Trade during the War.

**1. Authority for.**—By the Customs Act 1901-1910 it is enacted that the Governor-General may, by proclamation, prohibit the exportation or transfer from any State to any other State of the Commonwealth of any goods, being arms, explosives, military stores or naval stores, or being goods which, in his opinion, are capable of being used as or in the manufacture of arms, explosives, military stores, or for any purpose of war; and, by the Defence Act 1903-1912, it is enacted that the Governor-General may, subject to the provisions of that Act, do all things deemed by him to be desirable for the efficient defence and protection of the Commonwealth or of any State.

By virtue of the above, proclamations prohibiting or controlling exports from the Commonwealth have been issued from time to time as circumstances appeared to warrant.

**2. Luxuries Board.**—With a view to restricting unnecessary private expenditure and so increasing the ability of the people to contribute to war loans, a Luxuries Board was appointed under the War Precautions (Luxuries Restriction) Regulations 1917 (Gazette, 29th May, 1917). The Board consisted of two representatives of the Chamber of Manufactures and two representatives of the Chambers of Commerce, with Mr. Nicholas C. Lockyer as chairman.

By proclamation in the Gazette of 10th August, 1917, the importation of the following goods into the Commonwealth was prohibited except with the consent in writing of the Minister of State for Trade and Customs:—Ale and other beer, porter, cider and perry (spirituous, in bulk or in bottle), potable spirits, perfumed spirits and bay rum, biscuits, confectionery, eggs (in shell or otherwise), fur apparel, perfumery, jewellery, imitation jewellery, and imitation precious stones, bodies for motor vehicles, whether imported separately or forming part of a complete vehicle.

**3. Commonwealth Board of Trade.**—In April, 1918 (Gazette 26th April, 1918), the Commonwealth Board of Trade was constituted with the following personnel:—President, the Hon. J. A. Jensen, M.P., Minister of State for Trade and Customs; Senator the Hon. E. J. Russell, Honorary Minister; the Hon. W. Massy Greene, M.P., Honorary Minister; Mr. H. A. Brookes (representing the Associated Chambers of Manufactures) and Mr. J. A. M. Elder (representing the Associated Chambers of Commerce).

The functions of the Board are to investigate and report upon all matters referred to it by the Minister, and generally to consider and advise the Government upon all matters affecting the Trade and Industry of the Commonwealth.

#### § 4. Method of Recording Imports and Exports.

1. **Value of Imports.**—The recorded value of goods imported from countries beyond the Commonwealth represents the amount on which duty is payable or would be payable if the duty were charged *ad valorem*. The value of goods is taken to be 10 per cent.\* in advance of the fair market value in the principal markets of the country whence the goods were exported, the increase being intended to represent roughly the insurance, freight and other charges to the place of landing.

2. **Value of Exports.**—The recorded value of goods exported is taken to represent the value in the principal markets of the Commonwealth in the ordinary commercial acceptance of the term. Some modification of this practice has, however, been necessary in respect of products affected by the policy of price-fixing arising from the war.

3. **Records of Past Years.**—In the years preceding federation each State independently recorded its trade, and in so doing did not distinguish other Australian States from foreign countries. As the aggregation of the records of the several States is, necessarily, the only available means of ascertaining the trade of Australia for comparison with later years, it is unfortunate that past records of values and the direction of imports were not on uniform lines admitting of the preparation of a record for Australia as a whole. On the introduction of the Customs Act 1901, the methods of recording values were made uniform throughout the States, but it was not until September 1903 that a fundamental defect in the system of recording transhipped goods was remedied. Up to this date goods arriving in any Australian port for transshipment to a port in another Australian State were recorded at the latter port only, where they were ordinarily recorded as from the transshipping State, and not as an import from the oversea country.

In recording exports an analogous defect also existed in most of the States, since goods despatched from one Australian State for transshipment in another State to an oversea country were simply recorded in the former as an export to the transshipping State; thus no proper record of the export oversea was made. Owing to this defect the oversea trade prior to September 1903 is understated by an amount which it is impossible to estimate accurately, since it varies with the development of the shipping facilities of the States concerned. To discover the direction of the transhipped trade is not possible. The figures presented in the tables hereinafter are therefore the values as recorded, and must be taken as subject to the defects explained.

4. **Vessels (Ships) Imported and Exported.**—The imports or exports of vessels were not recorded prior to the year 1905. The value of vessels imported during each of the years 1905 to 1916-17 were as follows:—1905, £265,957; 1906, £366,300; 1907, £680,700; 1908, £700,500; 1909, £757,100; 1910, £711,850; 1911, £340,045; 1912, £1,257,655; 1913, £1,662,300;† 1914-15, £340,530; 1915-16, £485,141; 1916-17, £2,278,243. The exports during the same years were:—1905, £79,975; 1906, £51,365; 1907, £90,201; 1908, £82,355; 1909, £38,600; 1910, £72,000; 1911, £17,605; 1912, £66,800; 1913, £418,220; 1914-15, £129,950; 1915-16, £289,000; 1916-17, £124,156.

\* Although cost of freight and insurance has risen materially in consequence of the war, no further addition has been made to the value of imports, and cognisance should be taken of this fact in regard to imports during 1914-15 and subsequent years referred to throughout this section.

† Exclusive of warships, £2,495,000.



5. **Ships' Stores.**—Prior to 1906 goods shipped in Australian ports on board oversea ships as ships' stores were included in the general exports. From 1906, ships' stores have been specially recorded as such, and omitted from the return of exports. The value of ships' stores during 1906 amounted to £875,966 (of which bunker coal represented £575,471, or 65.7 per cent.), during 1907 to £998,897 (bunker coal representing £668,724, or 66.45 per cent.), during 1908 to £1,196,106 (bunker coal £867,707, or 72.55 per cent.), during 1909 to £1,071,677 (bunker coal £781,113, or 72.90 per cent.), during 1910 to £1,080,133 (bunker coal £740,567, or 68.57 per cent.), during 1911 to £1,238,446 (bunker coal £858,783, or 69.35 per cent.), during 1912 to £1,431,985 (bunker coal £1,008,259, or 70.41 per cent.), during 1913 to £1,458,702 (bunker coal £1,018,595, or 69.82 per cent.) during 1914-15 to £1,587,757 (bunker coal £829,875, or 52.26 per cent.), during 1915-16, to £1,544,872 (bunker coal £719,510, or 46.57 per cent.), and during 1916-17, to £1,676,116 (bunker coal, £748,852, or 44.68 per cent.).

### § 5. Oversea Trade.

1. **Total Oversea Trade.**—The following table shews the total trade of the Commonwealth with oversea countries from the earliest date for which records are available. In consequence of the defects of record, referred to in the preceding section, the results can be only approximate to the actual figures. The very marked rise and sudden fall in the value of imports during the period 1837 to 1842 were contemporaneous with heavy land speculation and a subsequent severe financial crisis. The great increase of trade in the early fifties was due to the discovery of gold. In the State of Victoria the value of imports from oversea countries increased from £500,000 in 1851 to nearly £11,000,000 in 1853, and to £13,000,000 in 1854; while in New South Wales similar imports rose from £1,390,000 in 1851 to £5,500,000 in 1854, when the total imports into the Commonwealth reached the sum of £34 13s. 10d. per head, and the total trade £56 3s. 10d. per head of the population. The rapid influx of persons anxious to share the good fortunes of these times, however, soon reduced the value of the trade per head, till, in 1858, it had declined to £31 19s. 6d. per head. The period 1867-1872 showed a marked reduction in the value of trade per head. For some years prior to this period New South Wales had experienced a succession of indifferent seasons, and Victoria was suffering from a congested labour market consequent on the decline of alluvial gold-mining in that State. This congestion of the labour market during the years 1862 to 1866 gave rise to the agitation for a protective tariff to provide employment in manufactures, and in April 1866, the Tariff Act, which expressed the protective policy thenceforward adhered to in Victoria, was assented to.

#### OVERSEA TRADE OF THE COMMONWEALTH, 1826 to 1916-17.

Period.	Recorded Value.			Value per Inhabitant.*			Percentage of Exports on Imports.
	Imports.	Exports.	Total.	Imports.	Exports.	Total.	
	£1,000.	£1,000.	£1,000.	£ s. d.	£ s. d.	£ s. d.	%
1826-30	688	153	791	10 12 5	2 10 11	13 3 4	23.9
1831-35	1,144	613	1,757	11 19 10	6 8 6	18 8 4	53.6
1836-40	2,283	1,112	3,395	14 15 9	7 4 1	21 19 10	48.7
1841-45	1,906	1,378	3,284	9 0 5	6 10 5	15 10 10	72.3
1846-50	2,379	2,264	4,643	6 18 10	6 12 2	13 11 0	95.2
1851-55	11,931	11,414	23,345	19 12 5	18 15 4	38 7 9	95.7
1856-60	18,816	16,019	34,835	18 6 1	15 11 8	33 17 9	85.1

\* Reckoned on mean population of the year.

## OVERSEA TRADE OF COMMONWEALTH, 1826 TO 1916-17.—Continued.

Year.	Recorded Value.			Value per Inhabitant.*			Percentage of Exports on Imports.
	Imports.	Exports.	Total.	Imports.	Exports.	Total.	
	£,1000.	£1,000.	£1,000.	£ s. d.	£ s. d.	£ s. d.	%
1861	17,651	17,413	35,064	15 5 2	15 1 1	30 6 3	98.7
1862	20,599	18,065	38,664	17 7 1	15 4 5	32 11 6	87.7
1863	21,248	19,336	40,584	17 4 7	15 13 7	32 18 2	91.0
1864	20,503	18,977	39,480	15 17 4	14 13 6	30 10 10	92.6
1865	20,660	19,706	40,366	15 4 4	14 10 4	29 14 8	95.4
1866	21,311	18,972	40,283	15 0 10	13 7 10	28 8 8	89.0
1867	15,964	18,384	34,348	10 18 1	12 11 2	23 9 3	115.2
1868	18,436	21,650	40,086	12 3 11	14 6 6	26 10 5	117.4
1869	19,910	20,066	39,976	12 14 4	12 16 4	25 10 8	103.8
1870	17,833	18,012	35,845	11 0 2	11 2 5	22 2 7	101.0
1871	17,017	21,725	38,742	10 3 3	12 19 6	23 2 9	127.7
1872	18,833	22,518	41,351	10 18 9	13 1 7	24 0 4	119.6
1873	24,567	26,370	50,937	13 17 10	14 18 2	28 16 0	107.4
1874	24,554	25,646	50,200	13 9 9	14 1 8	27 11 5	104.5
1875	24,939	24,978	49,917	13 6 2	13 6 7	26 12 9	100.1
1876	23,963	23,540	47,503	12 8 7	12 4 2	24 12 9	98.2
1877	25,797	23,107	48,904	12 18 8	11 11 8	24 10 4	89.6
1878	26,181	23,773	49,954	12 14 0	11 10 8	24 4 8	90.8
1879	24,233	21,184	45,417	11 7 10	9 19 2	21 7 0	87.4
1880	22,939	27,255	50,194	10 8 10	12 8 1	22 16 11	118.8
1881	29,067	27,528	56,595	12 16 2	12 2 8	24 18 10	94.7
1882	36,103	27,313	63,416	15 7 7	11 12 9	27 0 4	75.6
1883	35,454	30,058	65,512	14 9 9	12 5 8	26 15 5	84.8
1884	36,988	28,708	65,696	14 9 6	11 4 8	25 14 2	77.6
1885	36,862	26,667	63,529	13 18 2	10 1 3	23 19 5	72.3
1886	34,179	21,700	55,879	12 9 4	7 18 4	20 7 8	63.5
1887	29,572	23,421	52,993	10 8 8	8 5 3	18 13 11	79.2
1888	36,881	28,900	65,781	12 11 7	9 17 2	22 8 9	78.4
1889	37,577	29,553	67,130	12 8 8	9 15 7	22 4 3	78.6
1890	35,168	29,321	64,489	11 6 4	9 8 9	20 15 1	83.4
1891	37,711	36,043	73,754	11 16 0	11 5 6	23 1 6	95.6
1892	30,107	33,370	63,477	9 4 0	10 3 10	19 7 10	110.8
1893	23,765	33,225	56,990	7 2 7	9 19 4	17 1 11	139.8
1894	21,897	32,131	54,028	6 9 0	9 9 4	15 18 4	146.7
1895	23,195	33,644	56,839	6 14 1	9 14 6	16 8 7	145.0
1896	29,658	32,964	62,622	8 8 5	9 7 2	17 15 7	111.1
1897	31,958	37,783	69,741	8 18 3	10 10 9	19 9 0	118.2
1898	31,481	40,165	71,646	8 12 11	11 0 7	19 13 6	127.6
1899	34,330	48,599	82,929	9 6 0	13 3 5	22 9 5	141.6
1900	41,388	45,957	87,345	11 1 3	12 5 9	23 7 0	111.0
1901	42,434	49,696	92,130	11 3 11	13 2 2	24 6 1	117.1
1902	40,676	43,915	84,591	10 11 4	11 8 3	21 19 7	108.0
1903	37,811	48,250	86,061	9 14 3	12 7 10	22 2 1	127.6
1904	37,021	57,486	94,507	9 7 9	14 11 7	23 19 4	155.3
1905	38,347	56,841	95,188	9 11 9	14 4 1	23 15 10	148.2
1906	44,745	69,738	114,483	11 0 4	17 3 6	28 3 10	155.9
1907	51,809	72,824	124,633	12 11 3	17 13 2	30 4 5	140.6
1908	49,799	64,311	114,110	11 17 5	15 6 8	27 4 1	129.1
1909	51,172	65,319	116,491	11 19 5	15 5 7	27 5 0	127.6
1910	60,014	74,491	134,505	13 14 8	17 0 10	30 15 6	124.1
1911	66,968	79,482	146,450	14 18 3	17 14 0	32 12 3	118.7
1912	78,159	79,096	157,255	16 16 7	17 0 7	33 17 2	101.2
1913	79,749	78,572	158,321	16 12 0	16 7 2	32 19 2	98.5
First Six Months 1914	39,777	37,930	77,707	8 2 7	7 15 0	15 17 7	95.4
1914-15	64,432	60,593	125,025	13 0 10	12 5 3	25 6 1	94.0
1915-16	77,521	74,778	152,299	15 14 5	15 3 3	30 17 8	96.4
1916-17	76,229	97,955	174,184	15 12 7	20 1 10	35 14 5	128.5

\* Reckoned on mean population of the year.

The graphs illustrating the movement of the oversea trade of Australia (see pages 571 and 572) shew that periods of depressed trade have been recurrent at more or less regular intervals of from seven to nine years, and, measured by population, each succeeding depression since 1855 carried the trade per head lower than the preceding one, until the lowest point was reached in 1894.

The year 1892 marked the beginning of a period of acute financial stress, culminating in the commercial crisis of 1893. The collapse of these years is plainly reflected in the trade records of that period, the trade of 1894 falling to £54,028,227, a decline of no less than 26.75 per cent. in three years. In 1895 there was a slight recovery, and a continuous upward movement until 1901, when the trade reached £92,130,183, or £24 6s. 1d. per head. A decline, due to drought, in the exports of agricultural, pastoral, and dairy produce, reduced the trade of 1902 to £84,591,037, but although in the next year there was a further shrinkage in the exports of agricultural produce, the increase in the value of the exports of metals, specie, butter, and wool was so large as to effect an increase in the total trade. From 1902 the increase in the value of trade continued, till in 1907 it reached the amount of £124,633,280, equal to £30 4s. 5d. per inhabitant.

The imports during 1907 were, doubtless, to some extent inflated by the importation of goods in anticipation of the tariff revision of that year. The trade of 1908 shews a decline of £10,523,000 as compared with 1907, of which £8,513,000 was in the value of exports, notwithstanding an increase of £3,447,767 in the export of gold and specie. This decline in the value of exports was largely due to reduced prices ruling for wool and metals in consequence of the financial crisis in the United States during the previous year, and in lesser degree to the smaller exports of agricultural and pastoral produce, due to the unfavourable season experienced in some of the States.

The trade of 1909 per head of population was slightly more than in 1908, notwithstanding that the gold exports were less by £5,193,587. In 1910 the value of imports per head was higher than in any year since 1885, and the value of exports was—excepting in the years 1906 and 1907—the highest since 1857. The high value of exports is particularly striking when considered in conjunction with the exceptionally small exports of gold. The exports of gold, already much reduced in 1909 as compared with 1908, were in 1910 still further reduced by £4,264,368 to £4,108,783, the smallest recorded since 1892. During 1911 the exports of gold bullion and specie again increased to £11,540,782. The continued increase in the value of imports during 1912 and 1913, while the value of exports remained stationary, is referred to on the next page.

The trade of 1914-15, was, of course, materially affected by the war. Of the £18,000,000 decrease in the value of exports during 1914-15 as compared with 1913, about £13,500,000 was mainly due to the dry season throughout the Commonwealth. From this cause the exports of wheat and flour were reduced by about £3,500,000, and of butter by £1,000,000. The reduction by £4,000,000 of the exports of wool was the joint result of the war and the drought, for although the clip was much reduced by the latter cause, the dislocation of the sales by the war was responsible for a considerable quantity being held over for shipment till the next year. The influence of the war in restricting exports was most pronounced with regard to metals and coal, which, together, were nearly £6,000,000 below 1913, while skins and tallow declined by £2,500,000. On the other hand, the war was responsible for *increased* exports of meats, leather, and horses, amounting to over £4,500,000.

The increased value of the trade of 1915-16 over that of the previous year was due mainly to deferred shipments and to increased prices. The vagaries of the seasons, too, led to a large increase in both imports and exports during this year, inasmuch as the failure of the 1914-15 crops necessitated large imports of grain in the earlier part of the trade year, whereas in the latter part of the same year large exports were provided from the bountiful harvest of 1915-16. The exports of meat were much diminished by the unfavourable weather conditions of the previous season.

Notwithstanding that large quantities of wheat already sold to the Imperial Government could not be sent away because of the shortage of shipping tonnage, the value of exports was much greater than for any previous year. This result, however, was due to increased prices. On the basis of uniform prices, the value of exports during 1916-17 would have been much below that of the years immediately preceding the war.

The variations in the composition of the trade will be seen from the tables in § 8 following.

**2. Alteration of Trade Year.**—The desirability had long been felt of bringing the trade year into conformity with the seasons for the export of agricultural and pastoral products, but a disinclination to break the continuity of records had, hitherto, prevented the change. As it was obvious that trade itself, and not merely the records, would be seriously disturbed by the war, the time appeared to be peculiarly opportune for making the alteration. The trade returns were, therefore, closed as on the 30th June, 1914, and the new year started from the 1st July. The year 1914-15 thus includes nearly eleven months under war conditions.

**3. Ratio between Exports and Imports.**—The foregoing table shews the percentage of exports on imports for each year.† From this it will be seen that, with few exceptions, due to temporary dislocations of trade, prior to 1892 the balance of trade has been on the side of imports, but from 1891 to 1912 the reverse has been the case. The excess of imports in the earlier years represents the introduction of capital in the form of Government loans and for investment in private undertakings, and the excess of exports represents mainly the interest and profit on the earlier investments, repayment of loans to foreign bondholders, and also freight on trade, which is carried mainly by ships of the United Kingdom and foreign countries. As the introduction of new capital and the payments for interest on existing investments and for shipping and other services are continually operating in opposite directions at the same time in the statistics of trade, it follows that it is the balance only of these transactions which is reflected in the excess of imports or exports.

The marked change in the balance of trade, which is in the direction of that of twenty years ago, is a striking feature of the trade returns for 1912. The decline in the ratio of exports to imports has been due, mainly, to loans raised in London by the Governments of the various States of the Commonwealth. The proceeds of these loans, of course, swell the import returns, but, as no immediate payment beyond an instalment of interest has to be made in return, the export figures are affected to a very minor degree, until such time as the principal of the debt is repaid. The larger number of immigrants had, also, to some extent affected the balance of trade by the introduction of capital. The following table presents the balance of trade of the Commonwealth as shewn by the records of imports and exports for each year from 1902, and, also, the modification of these figures as affected by loans raised in London by the Governments of the States and the Commonwealth:—

**EFFECT OF LOANS ON THE RECORDED BALANCE OF TRADE, 1902-17.**

Year.	Excess of Exports as Recorded.		Net Amount of Debt Raised or Redeemed(—) in London.	Excess of Exports Modified by Elimination of Loans to Commonwealth and States' Governments.	
	Amount.	Per cent.	Amount.	Amount.	Per cent.
	£1,000.		£1,000.	£1,000.	
1902 ... ..	3,239	100	5,014	8,253	100
1903 ... ..	10,439	322	1,658	12,097	146
1904 ... ..	20,465	632	753	21,218	257
1905 ... ..	18,494	571	1,968	20,462	248
1906 ... ..	24,993	771	5,308	19,685	238
1907 ... ..	21,015	649	2,259	18,756	227
1908 ... ..	14,512	448	6,088	20,600	249
1909 ... ..	14,147	436	2,562	16,709	202
1910 ... ..	14,477	447	2,904	11,573	140
1911 ... ..	12,514	386	3,123	15,637	189
1912 ... ..	937	29	12,205	13,142	159
1913 ... ..	1,178	36	19,666	18,488	225
1914 (January to June) ...	1,847	*	*	1,847	*
1914-15 ... ..	3,839	119	19,301	15,462	187
1915-16 ... ..	2,743	85	24,912	22,169	269
1916-17 ... ..	21,726	670	22,961	44,687	541

\* Prior to June, 1914, the figures relating to Debt were six months in advance of the Trade figures; since that date the periods to which the figures relate are identical.

† For individual years 1826 to 1860 see Official Year Book, No. 7, and previous issues.

The trade balances would be further modified by the loans of local governing bodies, by the imports of capital for private enterprises, and by the addition to or absorption of bank balances held in London on Australian account. Particulars of such transactions are, however, not available. In regard to the importation of private capital, it may not be without significance that the tariff of 1908 was followed by a pronounced diminution in the excess of exports, the suggestion being that industrial enterprise had been augmented by imported capital in consequence of the increased protection to local industries.

The general relationship between the balance of trade of the Commonwealth and the borrowing of money abroad is demonstrated by the following figures :—

### BALANCE OF TRADE AND PUBLIC DEBT, 1867-1917.

Period.	Annual Average.					
	Imports.	Exports.	Recorded Excess of		New Debt.	Excess of Exports modified by elimination of Loans.
			Imports.	Exports.		
	Mill. £.	Mill. £.	Mill. £.	Mill. £.	Mill. £.	Mill. £.
1867-1871 ...	17.8	20.0	...	2.2	1.7	3.9
1872-1876 ...	23.4	24.6	...	1.2	2.6	3.8
1877-1881 ...	25.6	24.6	1.0	...	5.2	4.2
1882-1886 ...	35.8	26.8	9.0	...	10.6	1.6
1887-1891 ...	35.4	29.4	6.0	...	7.4	1.4
1892-1896 ...	25.6	33.0	...	7.4	3.8	11.2
1897-1901 ...	36.2	44.4	...	8.2	3.2	11.4
1902-1906 ...	39.6	55.2	...	15.6	0.8	16.4
1907-1911 ...	56.0	71.2	...	15.2	1.3	16.6
1912-1915-16 (4½ years)	75.5	73.5	2.0	...	19.0	17.0
1916-1917 ...	76.2	97.9	...	21.7	23.0	44.7

\* Subsequent to 1897 these figures relate to moneys raised outside of Australia only. Prior to 1893 the amounts raised locally were insignificant, but it is probable that the amount of new debt raised during 1892-5 is somewhat overstated. Loans raised by Local Government Bodies are not included.

The maintenance of military forces abroad and the financial arrangements in connection with the war generally, have obscured the balance of trade for the last period shewn in the table, but it is evident from the 1916-17 figures that abnormal obligations have been dealt with.

It would appear, however, that immediately prior to the war, a sum of about 16 million pounds was required annually to meet the "invisible" obligations of the Commonwealth.

## § 6. Direction of Trade.

1. **Country of Shipment and Country of Origin.**—The following table shews, for the years 1908 and 1916-17, the value of imports recorded as direct from the principal countries, and also the disposition of the value of imports against the countries where they were produced or manufactured. A similar comparison for the years 1905 to 1915-16 will be found in the previous issue of this work.

**COMMONWEALTH IMPORTS FROM COUNTRIES OF SHIPMENT AND COUNTRIES OF ORIGIN, 1908 and 1916-17.**

Country.	Imports according to—							
	Country of Shipment.				Country of Origin.			
	1908.		1916-17.		1908.		1916-17.	
	Value.	Per cent.	Value.	Per cent.	Value.	Per cent.	Value.	Per cent.
	£		£		£		£	
United Kingdom ... ..	29,930,157	60.10	39,996,204	52.47	25,274,661	50.75	36,253,864	47.56
BRITISH POSSESSIONS—								
Canada ... ..	321,041	0.64	1,599,951	2.10	532,752	1.07	1,408,091	1.85
Ceylon ... ..	683,813	1.37	1,285,294	1.69	681,950	1.37	1,191,248	1.56
Hong Kong ... ..	247,689	0.50	395,096	0.52	7,321	0.01	11,310	0.02
India ... ..	1,630,246	3.28	3,810,287	5.00	1,658,140	3.33	3,896,463	5.11
New Zealand ... ..	2,276,597	4.57	2,177,466	2.86	2,196,433	4.41	1,985,776	2.61
Straits Settlements ... ..	384,567	0.77	864,358	1.13	158,603	0.32	201,132	0.26
Other British Possessions ... ..	845,671	1.70	2,086,102	2.73	994,755	2.00	2,312,578	3.03
Total British Possessions ... ..	6,389,624	12.83	12,218,554	16.03	6,229,954	12.51	11,006,598	14.44
Total British Countries ... ..	36,319,781	72.93	52,214,758	68.50	31,504,615	63.26	47,260,462	62.00
FOREIGN COUNTRIES—								
Austria-Hungary* ... ..	16,947	0.03	86	0.00	265,345	0.53	1,370	0.00
Belgium ... ..	970,187	1.95	18,159	0.02	636,450	1.28	58,001	0.08
China ... ..	69,362	0.14	178,734	0.23	315,887	0.63	580,920	0.76
France ... ..	479,642	0.97	159,019	0.21	1,775,389	3.56	1,492,553	1.96
Germany* ... ..	3,509,120	7.05	47,675	0.07	4,482,394	9.00	97,512	0.13
Japan ... ..	543,789	1.09	3,382,828	4.44	574,906	1.15	3,373,684	4.43
Netherlands ... ..	173,528	0.35	42,452	0.06	311,832	0.63	334,496	0.44
Norway ... ..	314,685	0.63	959,302	1.26	420,470	0.85	1,049,913	1.37
Spain ... ..	12,131	0.02	6,492	0.01	108,104	0.22	95,707	0.12
Sweden ... ..	206,614	0.41	743,609	0.97	348,666	0.70	705,796	0.92
Switzerland ... ..	38,498	0.08	123,237	0.16	754,110	1.51	1,423,790	1.87
United States ... ..	6,039,753	12.13	15,528,311	20.37	6,581,846	13.22	15,876,010	20.83
Other Foreign Countries ... ..	1,105,236	2.22	2,824,017	3.70	1,719,259	3.46	3,878,465	5.09
Total Foreign Countries ... ..	13,479,492	27.07	24,013,921	31.50	18,294,658	36.74	28,968,217	38.00
Total Imports from all Countries ... ..	49,799,273	100	76,228,679	100	49,799,273	100	76,228,679	100

\* The imports shewn as from enemy countries during 1916-17 were on board German ships interned in South Africa and elsewhere and were subsequently forwarded to Australia. (See also page 600.)

The only country from which the value of direct imports exceeds by any large amount the value of the imports of goods which were manufactured or produced therein, that is to say, the only country which shews a balance of any magnitude as a distributor of the goods of other countries to Australia, is the United Kingdom. The records of imports therefrom during the year 1916-17 shew that while the total direct imports from that country amounted to £39,996,204, the value of the manufactures or produce of the United Kingdom itself, imported from all countries whatsoever during the same year, was £36,253,864. From the foregoing figures it appears that goods to the value of at least £3,742,340 were received from other countries through the United Kingdom.

Other countries which prior to the war shewed balances as distributors to Australia, though absolutely of much less amount, were Belgium, Canada, Hong Kong, New Zealand, Straits Settlements, and Ceylon. The countries mentioned were, of course, not the only countries through which goods were indirectly imported into Australia, for the direct imports from other countries included considerable values which were not the produce of those countries. Prior to the war large quantities of goods not manufactured in France or Germany were shipped to Australia from those countries. Such transactions, were, however, more than balanced by French and German goods received through the United Kingdom and other countries.

2. *Direct Imports according to Country of Shipment.*—The following table shews the average yearly value of imports from each of the principal countries during each succeeding quinquennial period from 1894 to 1913, and for the year 1916-17. The countries mentioned in this table are those in which the goods were shipped or whence they were directly consigned to Australia.

## IMPORTS INTO THE COMMONWEALTH FROM VARIOUS COUNTRIES, 1894 to 1916-17.

Country.	Yearly Average of Quinquennial Periods.				Year 1916-17.
	1894-8.	1899-1903.	1904-8.	1909-13.	
	£	£	£	£	£
United Kingdom ...	18,957,688	23,107,178	26,789,801	40,171,599	39,996,204
British Possessions—					
Canada ...	145,655	285,312	292,801	857,133	1,599,951
Ceylon ...	292,653	481,627	679,572	816,220	1,285,294
Fiji ...	110,167	91,918	89,425	389,276	1,112,446
Hong Kong ...	374,974	299,872	279,030	297,127	395,096
India ...	655,090	998,326	1,563,604	2,350,599	3,810,287
Mauritius ...	225,459	156,485	51,239	69,533	255
New Zealand ...	1,030,079	2,096,004	2,441,722	2,647,942	2,177,466
Papua ...	25,010	67,655	63,746	80,179	100,008
Union of South Africa ...	3,944	5,626	50,232	137,911	279,833
Straits Settlements	184,628	234,001	270,550	625,079	864,358
Other British Possessions	8,548	49,334	168,318	298,640	593,560
Total British Possessions ...	3,056,207	4,766,160	5,950,239	8,569,639	12,218,554
Total British Countries ...	22,013,895	27,873,338	32,740,040	48,741,238	52,214,758
Foreign Countries—					
Belgium ...	264,743	428,305	815,228	1,724,846	18,159
Bismarck Archipelago, Hawaiian Islands, New Caledonia, New Hebrides and other South Sea Islands ...	114,816	149,889	167,665	230,838	319,031
Chile and Peru...	3,894	32,956	22,611	47,818	254,757
China ...	271,799	249,940	70,887	83,628	178,734
France ...	324,368	504,558	455,301	545,071	159,019
Germany ...	1,423,498	2,521,486	3,112,897	4,329,681	47,675
Italy ...	93,774	157,502	197,464	343,894	363,709
Japan...	116,716	290,835	460,514	804,346	3,382,828
Java ...	310,423	648,729	314,745	848,213	1,290,994
Netherlands ...	18,548	59,576	133,191	234,650	42,452
Norway ...	*207,296	*425,664	312,357	599,801	959,302
Philippine Islands	22,807	84,660	79,056	113,156	142,731
Sweden ...	*	*	105,828	489,113	743,609
United States of America	2,368,737	5,342,307	5,124,191	7,643,641	15,528,311
Other Foreign Countries	84,253	553,542	232,183	432,463	582,610
Total Foreign Countries ...	5,625,672	11,449,949	11,604,118	18,471,159	24,013,921
Total ...	27,639,567	39,323,287	44,344,158	67,212,397	76,228,679

\* Norway and Sweden combined in these years.

Expressing each item as percentage on the total of the imports, the following results are obtained :—

**COMMONWEALTH IMPORTS.—PERCENTAGES OF IMPORTS FROM EACH COUNTRY  
ON THE TOTAL IMPORTS, 1894 to 1916-17.**

Country.	1894-8.	1899-1903.	1904-8.	1909-13.	1916-17.
	per cent.	per cent.	per cent.	per cent.	per cent.
United Kingdom ... ..	68.59	58.76	60.41	59.77	52.47
<b>BRITISH POSSESSIONS—</b>					
Canada ... ..	0.53	0.73	0.66	1.28	2.10
Ceylon ... ..	1.06	1.22	1.53	1.21	1.69
Fiji ... ..	0.40	0.23	0.20	0.58	1.46
Hong Kong ... ..	1.36	0.76	0.63	0.44	0.52
India ... ..	2.37	2.54	3.53	3.50	5.00
Mauritius ... ..	0.81	0.40	0.12	0.10	0.00
New Zealand ... ..	3.73	5.33	5.51	3.94	2.86
Papua ... ..	0.09	0.17	0.14	0.12	0.13
Union of South Africa ... ..	0.01	0.01	0.11	0.21	0.37
Straits Settlements ... ..	0.67	0.60	0.61	0.93	1.13
Other British Possessions ... ..	0.03	0.13	0.38	0.44	0.77
<b>Total British Possessions ... ..</b>	<b>11.06</b>	<b>12.12</b>	<b>13.42</b>	<b>12.75</b>	<b>16.03</b>
<b>Total British Countries ... ..</b>	<b>79.65</b>	<b>70.88</b>	<b>73.83</b>	<b>72.52</b>	<b>68.50</b>
<b>FOREIGN COUNTRIES—</b>					
Belgium ... ..	0.96	1.09	1.84	2.57	0.02
Bismarck Archipelago, Hawaiian Islands, New Caledonia, New Hebrides and other South Sea Islands ... ..	0.42	0.38	0.38	0.34	0.42
Chile and Peru ... ..	0.01	0.08	0.05	0.07	0.33
China ... ..	0.98	0.64	0.16	0.12	0.23
France ... ..	1.18	1.28	1.02	0.81	0.21
Germany ... ..	5.15	6.41	7.02	6.44	0.07
Italy ... ..	0.34	0.40	0.45	0.52	0.48
Japan ... ..	0.42	0.74	1.04	1.20	4.44
Java ... ..	1.12	1.65	0.71	1.26	1.69
Netherlands ... ..	0.07	0.15	0.30	0.35	0.06
Norway ... ..	0.75*	1.08*	0.70	0.89	1.26
Philippine Islands ... ..	0.08	0.22	0.18	0.17	0.19
Sweden ... ..	*	*	0.25	0.73	0.97
United States of America ... ..	8.57	13.59	11.55	11.37	20.37
Other Foreign Countries ... ..	0.30	1.41	0.52	0.64	0.76
<b>Total Foreign Countries... ..</b>	<b>20.35</b>	<b>29.12</b>	<b>26.17</b>	<b>27.48</b>	<b>31.50</b>
<b>Total ... ..</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

\* Norway and Sweden combined in these years.

**3. Imports from the United Kingdom.**—The foregoing tables shew that notwithstanding the smaller imports from the United Kingdom during 1916-17 as compared with the average of the quinquennial period immediately preceding the war, the figures were



more than double the average of the period 1894-8. It will be noticed, however, that the development of the import trade from the United Kingdom has not kept pace with the total trade, inasmuch as the *proportion* of imports shipped from the United Kingdom has, during the period under review, declined from 68.59 per cent. during the years 1894-8 to 52.47 per cent. for the year 1916-17. The apparent diversion of Australian trade from Great Britain is more fully dealt with in paragraph 12 of this section. The values of the principal imports of United Kingdom origin during the year 1916-17 are as follows :—

Ale and beer, £166,654 ; apparel and textiles—apparel, £2,733,095, textiles, £12,391,018 ; arms, ammunition and explosives, £451,187 ; books and periodicals, £199,694 ; brushware, £66,424 ; earthenware, etc., £247,730 ; clocks and watches, £13,766 ; cocoa and chocolate, £121,748 ; confectionery, £254,627 ; cordage, metal, £102,589 ; cordage, other, £153,502 ; cutlery, £232,360 ; drugs and chemicals—alkalies (soda), £122,783, fertilizers, £930, medicines, £204,731, other drugs and chemicals, £840,416 ; electrical and gas appliances, £250,771 ; electrical materials, £467,098 ; fancy goods, £112,065 ; fish, fresh and preserved, £140,046 ; furniture, £29,377 ; glass and glassware, £179,466 ; indiarubber and manufactures, £256,269 ; instruments, musical, £114,720 ; instruments, surgical and dental, £63,899 ; iron and steel—pig iron, £17,841, bar, hoop, ingot, etc., £597,420, scrap, £245, girders, beams, etc., £17,699, plate and sheet, galvanized or corrugated, £649,430, not galvanized or corrugated, £138,609, pipes and tubes, £450,403, rails, fishplates, etc., £24,086, tinned plates, plain, £1,137,303 ; wire, £44,410 ; wire netting, £15,532 ; jewellery and precious stones, £172,912 ; kinematographs and films, £51,495 ; leather and leather manufactures, £170,277 ; machines and machinery, £1,220,065 ; metals, manufactures of, £1,859,309 ; milk, preserved, £4050 ; oils (not essential), £115,649 ; paints and colours, £457,610 ; paper, £1,269,119 ; pickles, sauces, etc., £73,730 ; soap, £39,789 ; specie, £16,968 ; spirits, £1,349,845 ; stationery, £281,707 ; tobacco, £86,682 ; tools of trade, £249,972 ; varnishes, £58,009 ; vehicles—bicycles, etc., £130,143, motors, £96,463, other vehicles, £190,054 ; vessels (ships), £2,258,361 ; yarns, £1,061,423.

4. **Imports Shipped from British Possessions.**—The growth of the value of imports from other British possessions during the past twenty years has been such as to increase the proportion to total imports from 11.06 per cent. in the years 1894-8 to 16.03 per cent. in 1916-17, the actual values being respectively £3,056,207 in the earlier period and £12,218,554 in 1916-17. Of the total imports from British possessions during 1915-16, 17.82 per cent., or 2.86 per cent. of all imports, was from New Zealand ; 31.18 per cent., or 5.00 per cent. of all imports, from India ; 13.09 per cent., or 2.10 per cent. of all imports, from Canada ; and 10.52 per cent., or 1.69 per cent. of all imports, from Ceylon. The imports from Canada shew an increase of £441,118, or 38.07 per cent. over those of 1913, and an increase of £742,818, or 86.66 per cent., over the average of the period 1909-13.

5. **Principal Imports, the Produce of British Possessions, 1916-17.**—These are as follows :—

(i.) *Canada.* Apparel and textiles—corsets, £52,942, other, £33,504, boots and shoes, £10,912 ; carbide of calcium, £13,717 ; fish, £123,857 ; fruit—apples, £18,499 ; furniture, £273 ; indiarubber and manufactures, £39,227 ; agricultural implements and machinery, £245,310 ; other machines and machinery, £12,665 ; metal manufactures, £134,343 ; paper, £302,380 ; timber, £14,557 ; motor chassis, £203,201, motor bodies, £34,647, other vehicles, £58,404.

(ii.) *Ceylon.* Coir fibre, £3529 ; nuts, £41,441 ; rubber and manufactures, £99,643 ; tea, £1,010,545. The large increase in the imports from Ceylon—from an average of £292,653 per year during the years 1894-8, to £1,285,294 in 1916-17—is due to the displacement of China teas in the Australian markets by those of India and Ceylon. Of

the total imports of tea during the year 1916-17, 57.80 per cent. was the produce of Ceylon.

(iii.) *Fiji*. Bananas, £198,323; copra, £43,619; sugar—produce of cane, £830,704; molasses, £16,345.

(iv.) *India*. Bags and sacks, £2,330,871; hessians, £416,298; cameos, precious stones, unset, £5875; carpets, mats, etc., £29,060; coffee and chicory, £53,686; cotton, raw, £2205; other unmanufactured fibres, £26,426; dyes, £1242; grain—beans and peas, £5171; iron, pig, £74,013; linseed, £162,268; oils—castor, £15,746, linseed, £8597; rice, £162,404; shellac, £5316; skins and hides, £106,018; spices, £19,553; tea, £264,591; timber, £6618; wax, paraffin, £42,266; yarns, £20,005.

(v.) *New Zealand*. Apparel and textiles, £16,461; animals—horses, £15,142, sheep, £21,086; beans and peas, £7950; butter, £35,004; cement, £8699; cheese, £3020; coal, £27,726; flax and hemp fibre, £203,332; fish, £39,168; gold, bullion and ore, £203,435; implements and machinery (agricultural), £3300; machines and machinery, £7573; meats, £37,710; milk and cream, £14,122; potatoes, £226; seeds, £16,131; skins and hides, £166,944; timber, £537,683; twine, reaper and binder, £25,250; wool, £468,085.

(vi.) *Papua*. Copra, £15,650; fibres, flax and hemp, £11,283; gold bullion and ore, £27,459; ores, other than gold, £15,718; india rubber, £18,084.

(vii.) *Union of South Africa*. Bark, tanning, £48,575; explosives, £117,839; feathers, £6911; grain—maize, £2828; precious stones, £123,092; skins, £15,326; tobacco, etc., £4701.

(viii.) *Straits Settlements*. Canes and rattans, etc., unmanufactured, £9741; fodder—oil cake, £814; rubber and rubber manufactures, £50,714; spices, £41,410; sago and tapioca, £73,088.

**6. Imports Shipped from Foreign Countries.**—The imports direct from foreign countries during the year 1916-17 represented 31.50 per cent. of the total imports, as compared with 20.35 per cent. during the years 1894-8. Of the total imports into Australia shipped from foreign countries during 1916-17, 64.71 per cent.—20.37 per cent. of all imports—was from the United States. The small imports from Germany were, of course, due to the war, and consisted of goods in transit on board German ships on the outbreak of war, and of goods received from the captured German possessions in the Pacific.

**7. Principal Imports the Produce of Foreign Countries, 1916-17.**—(i.) *Austria-Hungary*. Apparel and textiles, £474; furniture, £150; chinaware, £375; glassware, £138; fancy goods, £38; jewellery and precious stones, £4; manufactures of metals, including machinery, £28; paper and stationery, £14; pipes, smoking, etc., £31.

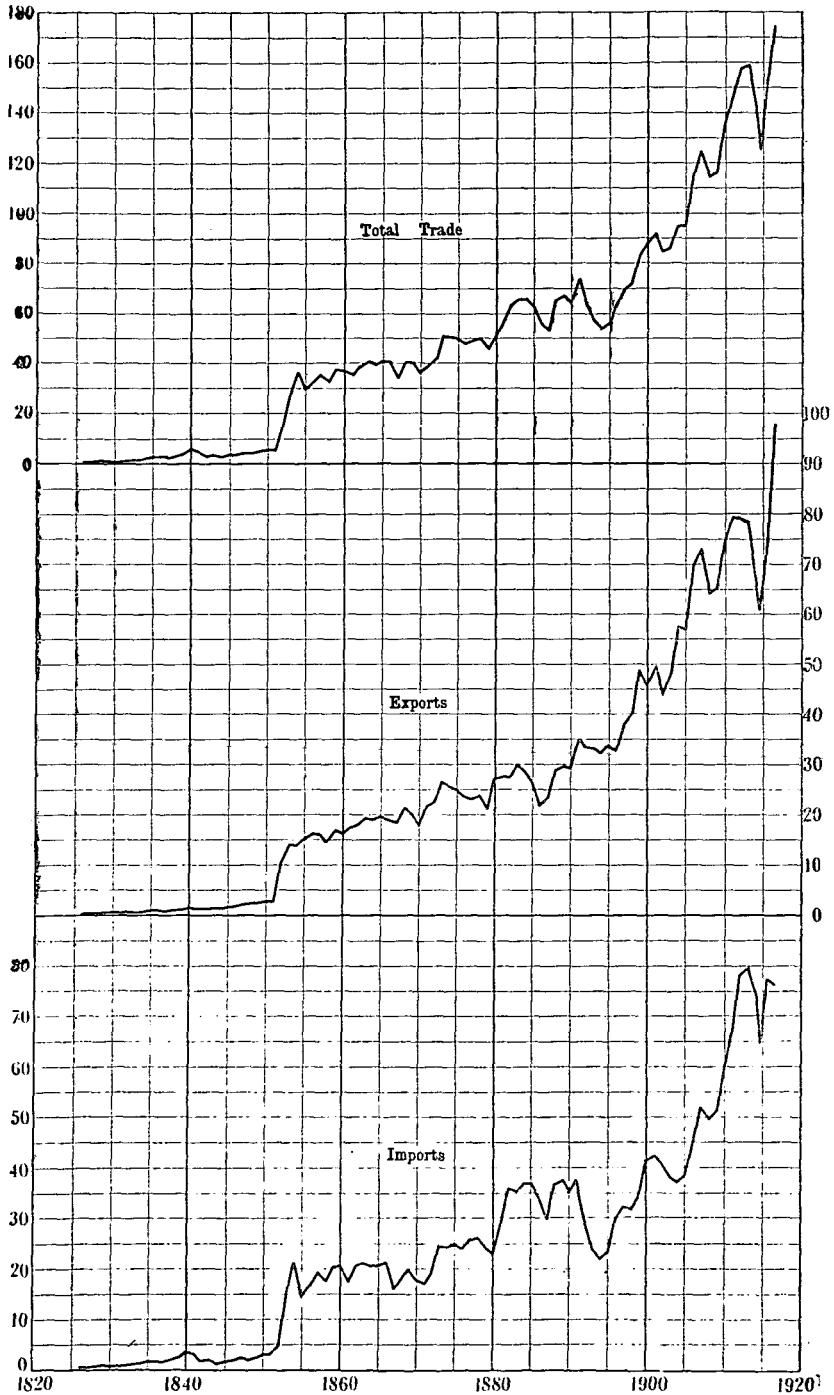
(ii.) *Belgium*. Apparel, £7305; textiles, £4428; cement, £172; drugs, chemicals, and fertilizers, £135; glass and glassware, £21,740; iron and steel—partly manufactured, £1683; plate and sheet, £602; machines and machinery, £2028; metal manufactures, £3494; motors and parts, £55; paper, £9262; zinc manufactures, £1295.

(iii.) *Brazil*. Coffee, £2265; india-rubber, £125,425.

(iv.) *Chile*. Soda nitrate, £107,931.

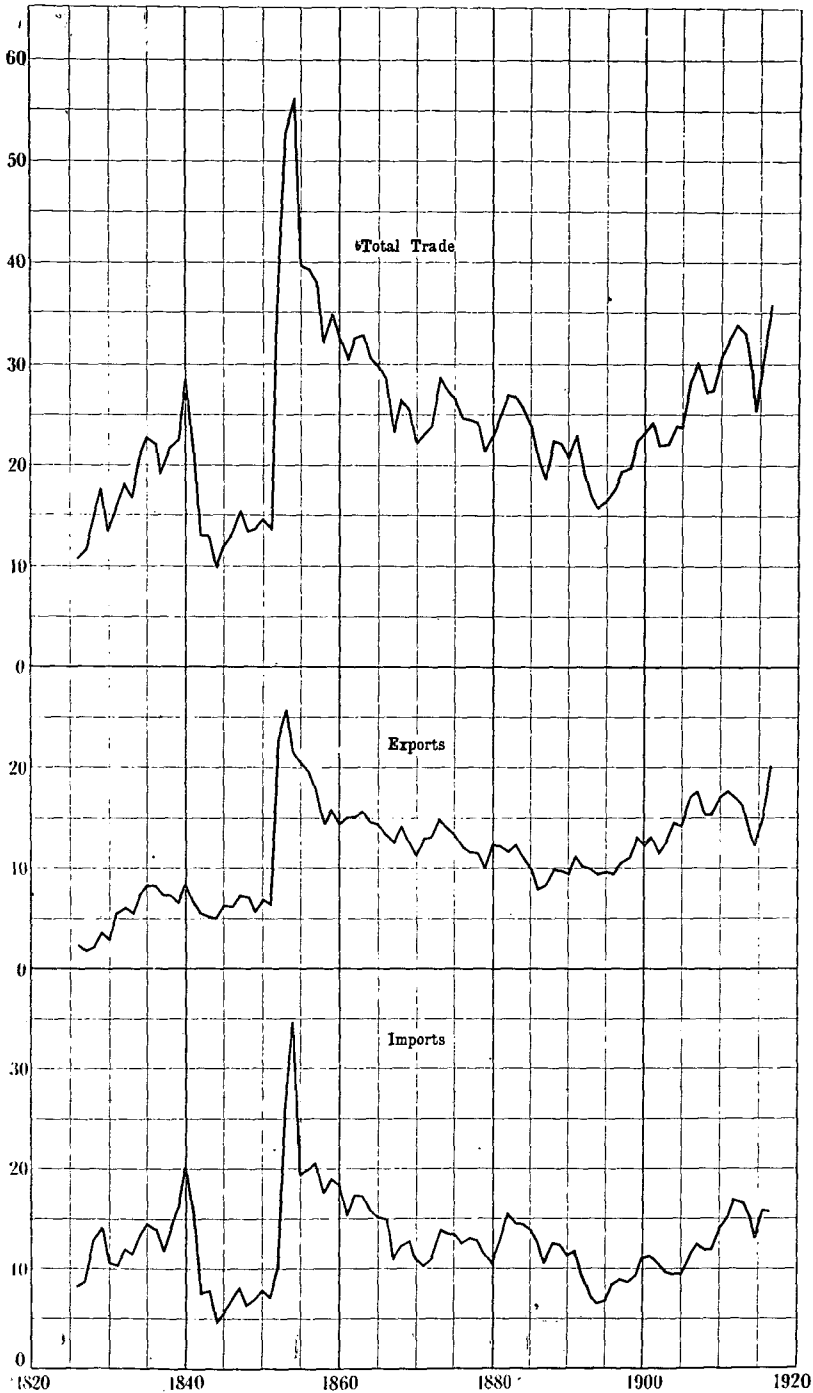
(v.) *China*. Apparel and textiles, £245,512; cotton, raw, £21,549; fish, £16,572; fruit, £15,959; ginger, £24,545; rice, £53,204; nuts, £40,809; oils, £16,363; tea, £50,420.

GRAPH SHEWING VALUES OF TOTAL TRADE, EXPORTS, AND IMPORTS OF  
COMMONWEALTH, 1826 to 1916-17.



EXPLANATION OF GRAPH.—The base of each square represents an interval of five years, and the vertical height five million pounds sterling for Imports and Exports, and ten million pounds sterling for Total Trade.

GRAPH SHEWING THE VALUES PER HEAD OF POPULATION OF TOTAL TRADE, EXPORTS, AND IMPORTS OF COMMONWEALTH, 1826 to 1916-17.



EXPLANATION OF GRAPH.—The base of each square represents an interval of five years, and the vertical height five pounds per head of the population.

The decline of the value of imports from China during the past twenty years is due to the loss of the tea trade, which now draws its supplies mainly from India and Ceylon.

(vi.) *Denmark*.—Ale and beer, £7586; cement, portland, £2976; matches, £2194.

(vii.) *France*. Apparel and textiles, £795,957; cream of tartar, £140,056; tartaric acid, £2741; other drugs and chemicals, £65,230; fruits, £1788; fancy goods, £33,471; gelatine, £5507; jewellery, £13,682; kinematographs, films, etc., £3718; pipes, smoking, etc., £40,928; motor vehicles and parts, £15,877; paper and stationery, £25,474; perfumery, £36,991; resin, £4729; rubber manufactures, £16,017; leather, £4211; machinery and manufactures of metal, £21,263; spirits, £162,655; tiles, £2316; wine, £42,606.

(viii.) *Germany*. Ale and beer, £122; apparel and textiles, £11,240; arms, ammunition, and explosives, £52; brushware, £232; cement, £625; chinaware, etc., £682; copper wire and cable, covered, £180; earthenware, £165; dyes, £143; fertilizers, £1177; other drugs, etc., £5000; fancy goods, £4073; furniture, £81; glass and glassware, £1689; indiarubber manufactures, £272; metals and manufactures of metals—iron and steel: bar, hoop, ingot, etc., £2179, plate and sheet, £759, pipes and tubes, £194, railway iron, £300, tools of trade, £320; wire, £1708; wire netting, £146; machines and machinery, £3273; lamps and lamp-ware, £1314; electrical and gas appliances, £1000; other manufactures of metals, £8306; jewellery, cameos, etc., £100; leather and leather manufactures (excluding boots and shoes), £18; musical instruments, £7382; paper, £1690; specie, £27,116; spirits, £597; stationery, £980; tobacco, £2147; paints and varnishes, £253; yarns, £224.

(ix.) *Italy*. Apparel and textiles, £302,326; flax and hemp, £24,229; fruits, £8193; matches and vestas, £3119; marble and stone, £19,057; oils—olive, £11,828, essential, £12,807; nuts, £11,178; sulphur, £116,151; motors and parts, £17,682; rubber manufactures, £29,414; cream of tartar, £13,837; tartaric acid, £13,501.

(x.) *Japan*. Apparel and textiles, £1,602,188; bags, baskets, etc., £74,132; brushware, £55,173; cement, £1082; chinaware, £90,866; earthenware, £34,207; fancy goods, £113,841; fibres—cotton waste, £22,046; fish, £11,617; furniture, £11,722; glass and glassware, £136,413; grass straw for hats, £35,905; machinery and metal manufactures, £171,935; matches, £21,231; oils and waxes, £82,827; paper and stationery, £52,680; rice, £4070; spices, £8695; sugar, £127,179; sulphur, £300,111; tea, £4004; timber, £142,354.

Further reference is made in a later page to the imports from Japan.

(xi.) *Java*. Coffee, raw, £16,466; hats and caps, £265; rice, £155; kapok, £102,399; rubber, £5314; sugar, £536,361; tobacco, £6352; tea, £419,487.

(xii.) *Netherlands*. Apparel and textiles, £72,492; cocoa and chocolate, £35,751; cameos and precious stones, £15,090; metal manufactures, £51,980; paper, £25,073; spirits, £87,050; timber, £3236; vessels (ships), £382.

(xiii.) *Norway*. Calcium carbide, £30,642; cement, £385; fish, £193,903; machinery and manufactures of metals, £4463; matches, £4970; milk, preserved, £14,863; paper, £707,170; timber, etc., £33,395.

(xiv.) *Peru*. Rubber, £12,988; sugar, £144,408.

- (xv.) *Philippine Islands*. Flax and hemp, £116,798; cigars, £14,306.
- (xvi.) *Russia*. Flax, £1236; furs, £11,017; oils, £697; timber, £1032.
- (xvii.) *Spain*. Brandy (bulk), £10,387; corks, etc., £35,373; liquorice, £1033; nuts, £11,952; ores, £4237; wine, £4936.
- (xviii.) *Sweden*. Calcium carbide, £8366; earthenware, glassware, etc., £11,545; electrical machinery and fittings, £6377; cream separators, £88,529; other machinery, £34,969; manufactures of metals, £51,951; matches and vestas, £33,471; paper, £411,185; telephones, £4,226; timber, £2966.
- (xix.) *Switzerland*. Apparel and textiles, £1,009,407; chassis for motor cars, £1016; cigars, £2192; cocoa and chocolate, for potable use, £1645; confectionery, £109,224; drugs and chemicals, £17,347; fibro-cement, £2358; grass straw for hats, £20,936; machinery and metal manufactures, £27,565; milk, £26,967; watches, £167,398.
- (xx.) *United States of America*. Apparel and textiles—boots, shoes, etc., £135,854, corsets, £135,445, gloves, £31,000, hats and caps, £27,997, socks and stockings, £355,280, other apparel, £248,000, textiles, £756,118; arms, £31,658; ammunition and explosives, £108,075; bags, baskets, etc., £52,529; brushware, £28,445; butter, £2618; cameras, kinematographs and films, talking machines, £321,278; clocks and watches, £81,201; confectionery, £48,967; drugs and chemicals—cream of tartar, £24,729, medicines, £145,237, other, £301,277; electrical articles and materials, £74,710; fancy goods, £52,468; fish, £263,760; fruit, £118,356; furniture, £32,018; glass and glassware, £230,745; glucose, £2356; hops, £20,690; indiarubber manufactures, £417,212; leather, £561,376; meats, £71,530; metal manufactures—iron and steel: bars, ingots, hoops, etc., £500,667, girders, beams, etc., £130,432, pipes and tubes, £119,978, plate and sheet, £257,544, railway iron, £48,931; tools of trade, £254,568; wire, £236,134; machines and machinery, agricultural, £226,904; other machines and machinery, £1,442,303; other metal manufactures, £1,157,976; milk, £3617; musical instruments, £210,093; oils, fats, and waxes—benzine and gasoline, £780,059, cotton seed, £8331, kerosene, £615,973, lubricating oils and greases, £348,992, paraffin wax, £39,694; turpentine, £94,327; paints and varnishes, £134,804; paper, £681,719; perfumery, £68,405; resin, £74,802; soap, £26,027; soda—acetate, £4345, caustic, £46,628, salicylate, £6307; stationery, £164,061; surgical and dental instruments, £62,458; timber, £725,218; tobacco, cigars, etc., £870,868; vehicles, motors and parts, £1,088,679; other vehicles and parts, £212,897; wood and wicker manufactures, £83,720.

The imports from America are again referred to in a later page.

8. *Direction of Exports*.—The following tables shew that, prior to the war, a constantly decreasing proportion of Australian exports was being consigned to the United Kingdom. This was not entirely due to the relatively smaller purchases of Australian produce by the United Kingdom, but was in some measure the effect of an increasing tendency towards direct shipment of wool, skins, etc., to the consuming countries—notably to Belgium, France, and Germany—instead of distributing the trade through London as formerly. The figures given below, however, do not, even for the later pre-war years, denote the total purchases by European countries of Australian produce, as large quantities were still distributed from London. It should be noted, too, that the exports to India and Ceylon consisted largely of gold shipped on London account, and which was, therefore, virtually an export to the United Kingdom. The feature of the figures for 1916-1917 is the larger proportions of exports to the United Kingdom, Canada, Italy, Japan, and the United States of America. The larger proportion sent to the United Kingdom was mainly due to increased exports of wheat, meat, wool, minerals, and metals. Italy received larger shipments of wheat and wool, Japan of wool, wheat, and metals, while the larger proportion of exports to the United States and to Canada was mainly due to shipments of gold.

## TRADE OF THE COMMONWEALTH WITH VARIOUS COUNTRIES, 1894 to 1916-17.

## EXPORTS (INCLUDING BULLION AND SPECIE).

Country.	Yearly Average of Quinquennial Periods.				Year 1916-17.
	1894-8.	1899-1903.	1904-8.	1909-13.	
	£	£	£	£	£
United Kingdom ...	23,610,267	23,432,513	30,114,565	34,028,258	57,843,684
British Possessions—					
Canada ...	32,362	67,776	201,832	125,942	6,892,579
Ceylon ...	635,626	2,223,487	4,050,826	3,194,757	167,828
Fiji ...	124,453	205,731	284,636	402,877	425,456
Hong Kong ...	414,326	403,776	747,025	741,365	303,965
India ...	440,062	2,348,420	2,828,280	2,231,306	2,852,582
Mauritius ...	43,158	40,425	46,378	32,424	3,466
New Zealand ...	961,817	1,432,227	2,060,900	2,385,078	2,996,313
Papua ...	27,609	48,720	50,174	120,401	152,547
Union of South Africa ...	217,047	4,276,976	2,065,014	1,799,435	1,338,479
Straits Settlements ...	92,663	105,824	391,409	834,156	744,800
Other British Possessions ...	11,841	41,941	70,843	75,913	1,402,559
Total British Possessions	3,000,964	11,195,303	12,797,317	11,943,654	16,780,574
Total British Countries ...	26,611,231	34,627,816	42,911,882	45,971,912	74,624,258
Foreign Countries—					
Argentine Republic ...	609	25,398	40,094	126,142	26,799
Belgium ...	1,289,242	1,667,396	3,930,612	6,172,958	...
Bismarck Archipelago, Hawaiian Islands, New Caledonia, New Hebrides and other South Sea Isl'ds	383,179	789,966	442,050	631,465	723,894
Chile and Peru ...	159,501	299,097	624,168	616,704	400,516
China ...	25,030	237,376	340,726	161,527	105,993
France ...	2,289,284	2,754,889	5,686,867	8,183,825	4,079,761
Germany ...	1,678,313	2,549,266	5,140,556	6,938,358	...
Italy ...	102,495	159,017	207,218	525,903	4,453,187
Japan ...	91,630	198,434	869,350	1,194,271	3,726,788
Java ...	72,204	153,439	209,310	480,984	730,911
Netherlands ...	24,718	107,914	299,231	298,879	12
Norway ...	*2,765	*1,192	4,624	2,039	165,212
Philippine Islands ...	40,422	229,414	463,283	525,443	224,435
Spain ...	1,698	15,383	59,264	23,540	788
Sweden ...	*	*	4,219	4,888	...
United States of America ...	2,511,255	3,270,940	2,483,637	2,067,313	6,783,033
Other Foreign Countries ...	52,912	194,127	522,911	1,456,269	1,909,893
Total Foreign Countries	8,725,257	12,653,248	21,328,120	29,410,508	23,331,224
Total ...	35,336,488	47,281,064	64,240,002	75,382,420	97,955,482

\* Norway and Sweden combined for these years.

If each item be expressed as a percentage on the total export, the results will be as follows:—

**COMMONWEALTH EXPORTS.—PERCENTAGES OF THE EXPORTS TO EACH COUNTRY ON THE TOTAL EXPORTS, 1894 to 1916-17.**

Country.	1894-8.	1899-1903.	1904-8.	1909-13.	1916-17.
	per cent.	per cent.	per cent.	per cent.	per cent.
United Kingdom ...	66.82	49.56	46.88	45.14	59.04
British Possessions—					
Canada ...	0.09	0.14	0.31	0.17	6.52
Ceylon ...	1.80	4.70	6.32	4.24	0.17
Fiji ...	0.35	0.44	0.44	0.53	0.43
Hong Kong ...	1.17	0.85	1.16	0.98	0.31
India ...	1.25	4.97	4.40	2.96	2.91
Mauritius ...	0.12	0.09	0.07	0.04	0.00
New Zealand ...	2.72	3.03	3.21	3.16	3.07
Papua ...	0.08	0.10	0.08	0.16	0.16
Union of South Africa ...	0.62	9.05	3.21	2.39	1.38
Straits Settlements ...	0.26	0.22	0.61	1.11	0.76
Other British Possessions ...	0.03	0.09	0.11	0.10	1.43
Total British Possessions	8.49	23.68	19.92	15.84	17.14
Total British Countries ...	75.31	73.24	66.80	60.98	76.18
Foreign Countries—					
Argentine Republic ...	0.00	0.05	0.06	0.17	0.03
Belgium ...	3.65	3.53	6.12	8.19	...
Bismarck Archipelago, Hawaiian Islands, New Caledonia, New Hebrides and other South Sea Isl'ds	1.08	1.67	0.69	0.84	0.74
Chile and Peru ...	0.45	0.63	0.97	0.82	0.41
China ...	0.07	0.50	0.53	0.20	0.10
France ...	6.49	5.83	8.85	10.86	4.16
Germany ...	4.75	5.39	8.00	9.21	...
Italy ...	0.29	0.34	0.32	0.70	4.55
Japan ...	0.26	0.42	1.35	1.58	3.80
Java ...	0.20	0.32	0.33	0.64	0.74
Netherlands ...	0.07	0.23	0.47	0.40	0.00
Norway ...	0.01*	0.00*	0.01	0.00	0.17
Philippine Islands ...	0.11	0.49	0.72	0.70	0.23
Spain ...	0.00	0.03	0.09	0.03	0.00
Sweden ...	*	*	0.01	0.01	...
United States of America ...	7.11	6.92	3.87	2.74	6.93
Other Foreign Countries ...	0.15	0.41	0.81	1.93	1.96
Total Foreign Countries...	24.69	26.76	33.20	39.02	23.82
Total ...	100	100	100	100	100

\* Norway and Sweden combined for these years.

9. Exports to the United Kingdom.—The principal exports to the United Kingdom during the year 1916-17 were as follows:—Butter, £4,959,643; cheese, £364,474; copra, £29,289; fibres—rags, £26,610; fruit—apples, £82,015, other, including pulp, £255,170; grain and pulse—barley, £30,850, oats, £33,468, wheat, £6,257,098, flour, £1,472,469, other, £45,615; hair, £14,756; jams and jellies, £734,159; jewellery and precious stones, £19,086; leather, £731,606; meat—frozen beef, £4,890,927, mutton, £968,725, lamb



£527,933, rabbits and hares, £911,247, other frozen meat, £195,398, potted meat, £127,202, meat preserved in tins, £553,515; minerals and metals—copper—ingots, £2,914,289, in matte, £57,022; gold—specie, £3438, bullion, £1479, in matte, £128,088, ore, £967; silver—bullion, £861, in matte, £325,399; silver and silver-lead—concentrates, £17; lead—pig, £2,798,526, in matte, £637,256; tin—ingots and ore, £220,625; zinc, concentrates, £270,904; ores, other, £383,078; metals, scrap—exclusive of iron and steel, £26,029; zinc, bars, blocks, etc., £60,187; oil—cocoanut, £24,426, whale, £31,822; pearlshell, £62,948; skins—hides, £270,848, rabbit and hare, £45,217, sheep, £750,502, other skins, £136,095; tallow, £829,041; timber, £10,267; wine, £70,097; wool—greasy, £18,608,395; scoured, £4,823,547.

10. **Principal Exports to British Possessions, 1916-17.**—(i.) *Canada.* Meats, £5005; oil—cocoanut, £19,573; specie—gold, £6,000,000; hides and skins, £78,757; vegetables—onions, £13,361; wool, £77,267; zinc concentrates, £86,664.

(ii.) *Ceylon.* Butter, £10,919; fodder, £1878; grain, flour, £284; lard, £3513; lead, pig, £19,520; meats, £12,385; silver, bullion, £47,475; soap, £4063; sugar, £3705; timber, £36,041.

(iii.) *Egypt.* Apparel and attire, £1,927; butter, £9; grain and pulse—wheat, £719,235; flour, £112,999; meats—preserved in tins, £2169; tobacco, cigars, etc., £5472.

(iv.) *Fiji.* Apparel and textiles—apparel, including boots and shoes, £23,124, textiles, £28,539; bags, sacks, and cordage, £11,770; biscuits, £30,679; coal, £30,913; drugs and chemicals—fertilizers, £9213, other, £6024; grain, prepared—bran, pollard, and sharps, £37,135, flour, £25,621, rice, cleaned, £7778; machines and machinery, £12,921; metal manufactures, £48,412; oils, fats and waxes, £7221; specie, £200; timber, undressed, £8455; vehicles, £7407.

(v.) *Hong Kong.* Butter, £23,333; fish, £41,714; flour, £7971; lead, pig, £45,414; leather, £22,055; meats, £12,573; sandalwood, £71,460; soap, £3665.

(vi.) *India.* Biscuits, £30,732; bran, pollard, etc., £1514; coal, £22,421; copper, ingots, £279,520; horses, £312,271; hay and chaff, £12,011; jams and jellies, £166,089; lead, pig, £72,500; leather, £18,217; meats, £380,248; sandalwood, £4429; silver, bullion, £443,685; soap, £3591; tallow, £6647; tobacco, etc., £579; wool, £87,860.

(vii.) *New Zealand.* Apparel and textiles, etc.:—apparel—boots and shoes, £29,850, other apparel, £34,381, textiles, £86,644; bags and sacks, £3403; bark, tanning, £20,703; books and periodicals, £52,423; cameras, kinematographs and films, talking machines, etc., £53,137; photographic goods, £11,693; coal, £205,895; copper, ingots, £500; drugs and chemicals—fertilizers, £144,692, medicines, £50,893, other drugs, etc., £96,386; electrical materials, £12,521; fodders, £323; fruit—fresh, £39,369, dried, £52,824; glass and glassware, £32,229; grain—barley, £21,990, flour, £109,179, oats, £58,171, rice, £40,986; wheat, £61,166; hides and skins, £26,181; horses, £11,190; indiarubber manufactures, £136,415; iron, pig, £11,334; jewellery and precious stones, £12,394; lead, pig, £18,201; leather and leather manufactures, £82,563; metals, manufactures of—agricultural implements and machinery, £9584, other machines and machinery, £95,191, other manufactures of metals, £152,459; motor vehicles and parts, £18,117; oils, etc., £61,289; onions, £23,042; plants, trees and bulbs, £8983; paper, £16,868; salt, £26,001; seeds, £19,425; soap, £45,736; specie—gold, £222,000; spirits, £34,130; stationery, £65,992; sugar, £6641; tea, £131,640; timber, £115,491; tin, ingots, £21,928; tobacco, £107,162; wine, £29,232; vessels transferred, £2750.

(viii.) *Papua.* Ale and beer, £2144; apparel and textiles, £16,290; biscuits, £3267; butter, £3080; coal, £2536; fish, £6607; flour, £2713; machinery and manufactures of metal, £21,694; meats, £8698; oils, etc., £9154; rice, £14,982; timber, £6928; tobacco, £10,879.

(ix.) *Union of South Africa.* Animals, living—sheep, £25,442; butter, £1400; fruits—fresh, £250, other, £20,624; grain—wheat, £646,551; flour £335,695; jams and jellies, £11,198; leather, £56,995; fruit juices, £4216; machinery and manufactures of metal, £14,257; meats, preserved, in tins, £16,546; oils, etc., £17,242; seeds, £1537; soap, £10,562; tallow, unrefined, £17,231; timber, £84,245.

(x.) *Straits Settlements.* Butter, £30,700; coal, £28,035; grain, flour, £128,420; horses, £6427; leather, £22,003; machines and machinery, £32,851; meats, £76,533; tin ore, £222,281; sandalwood, £6504; soap, £14,598.

11. **Exports to Foreign Countries.**—The foregoing table shews that, prior to the war, an increasingly large proportion of the exports from the Commonwealth was being shipped to foreign countries. Apart from the large export of gold which was shipped to the United States of America, on London account, during 1915-16, the proportion of exports to foreign countries during the war has been much below that of recent pre-war years. This, of course, has been due mainly to the elimination of German and Belgian trade, and to reduced exports to France. Some further slight effect in the same direction may be due to the restrictions placed upon exports to China, the Netherlands and Siam from January, 1916.

12. **Principal Exports to Foreign Countries, 1916-17.**—These are as follow:—

(i.) *Argentine Republic.* Agricultural implements and machinery, £4698; wheat, £22,099.

(ii.) *Chile.* Coal, £50,068; coke, £3004.

(iii.) *China.* Butter, £35,096; flour, £3463; lead, £19,941; leather, £13,549; sandalwood, £5554; stearine, £9237.

(iv.) *Dutch East Indies: Java.* Butter, £217,093; biscuits, £10,405; cattle, £10,311; coal, £16,355; fertilizers, £87,866; flour, £184,397; fruits, fresh, £9607; horses, £3578; meats, £17,661; leather and manufactures, £51,296; soap, £2851.

(v.) *Other East Indies.* Butter, £17,906; biscuits, £8428; flour, £82,528; meats, £1815; soap, £9486.

(vi.) *France.* Copper—ingots, £13,574, copper in matte, £8342; flour, £369,093; hides and skins, £258,236; wheat, £239,468; wool, £963,097; zinc—bars, £32,429.

(vii.) *Italy.* Flour, £283,619; skins, £3772; tallow, £16,546; wheat, £2,273,032; wool, £1,845,861.

(viii.) *Japan.* Bones, £22,031; butter, £2868; concentrates—silver and silver lead, £30,850; zinc, £419,282; glue pieces and sinews, £10,253; hides, £1192; lead, pig, £435,248; manures, £14,573; oils, £13,585; tallow, £157,510; wool, £2,470,414.

(ix.) *Peru.* Coal, £10,879; wheat, £336,378.

(x.) *Philippine Islands.* Butter, £18,499; cattle, £4664; flour, £129,015; fodder, £3861; machines and machinery, £426; meats—bacon and hams, £14,510, beef, £11,139, mutton, £965, other meats, £1174; milk, concentrated, £20,577; onions, £4179.

(xi.) *United States of America.* Coal, £2390; concentrates—zinc, £307,658; copra, £76,982; hair, £7587; leather, £157,330; sausage casings, £63,106; oils—cocoanut, £34,927, eucalyptus, £25,093; pearlshell, £245,791; skins, £702,844; specie—gold, £4,500,000; timber, £21,562; tin—ingots, £314,409; wheat, £93,417; wool, £13,513.

## § 7. Development of Export Trade to Eastern Countries.

1. Trade with Eastern Countries.—The following tables shew the value of exports from the Commonwealth to Eastern countries during the last five years in comparison with the year 1901. The principal countries concerned in this trade are China, India, Ceylon, Japan, East Indies, Philippine Islands, Straits Settlements, and Hong Kong, and the particulars given in the tables apply to these countries only:—

### VALUE OF PRINCIPAL ITEMS OF MERCHANDISE EXPORTED FROM THE COMMONWEALTH TO EASTERN COUNTRIES, 1901 and 1912 to 1916-17.

Article.	1901.	1912.	1913.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£	£
Antimony ... ..	...	...	194	...	25,161	19
Butter ... ..	64,838	242,561	230,640	198,782	219,058	356,760
Coal ... ..	155,120	291,182	285,853	225,221	121,997	66,811
Concentrates—						
Silver and silver-lead ... ..	...	...	...	...	82,544	30,850
Zinc ... ..	...	345	...	...	186,703	419,282
Copper ... ..	39,375	91,580	84,758	127,959	230,879	279,520
Grain and Pulse—						
Wheat ... ..	46,685	8,605	226,641	43,169	1,373	399
Flour ... ..	135,092	690,403	825,112	162,262	316,931	540,757
Other (prepd. & unprepd.) ... ..	4,806	13,973	15,937	16,531	10,202	11,753
Hay, chaff, and comp. fodder ... ..	13,081	50,210	45,679	56,556	28,678	20,227
Horses ... ..	101,866	166,134	146,741	389,719	262,917	323,676
Lead ... ..	10,454	407,475	445,294	440,999	448,892	592,623
Leather ... ..	13,197	61,266	55,497	45,365	111,695	122,530
Meats ... ..	194,071	308,935	354,557	368,208	286,265	531,509
Pearl shell ... ..	20,440	908	735	1,612	25,064	48,124
Sandalwood ... ..	77,237	32,675	57,560	92,400	71,493	88,049
Skins, hoofs, horns, bones, sinews, tallow ... ..	16,419	126,289	108,479	134,443	64,912	205,372
Sulphate of ammonia ... ..	...	20,531	12,142	26,361	80,059	104,991
Tin ore ... ..	4,096	387,524	447,875	179,962	239,561	222,281
Timber, undressed ... ..	79,915	221,144	180,329	143,157	427	37,047
Wool ... ..	56,618	722,133	765,604	1,533,525	2,619,533	2,558,274
Other merchandise ... ..	192,903	466,064	566,342	543,807	573,899	1,190,961*
Total merchandise ... ..	1,226,213	4,309,937	4,862,959	4,729,038	6,008,243	7,752,015
Specie & gold & silver bullion ... ..	3,339,953	10,678,501	2,425,024	1,217,174	1,322,096	1,241,460
Total exports ... ..	4,566,166	14,988,438	7,287,983	5,946,212	7,330,339	8,993,475

\* The unusually large amount of other merchandise is due to shipments of jams, biscuits, cheese, fruits, milk, etc. to the order of the Imperial Government for military purposes.

The following tables shew the value of the principal articles exported to each of the undermentioned Eastern countries during each of the years 1901 and 1912 to 1916-17:—

### VALUE OF COMMONWEALTH EXPORTS OF MERCHANDISE TO PRINCIPAL EASTERN COUNTRIES, 1901 and 1912 to 1916-17.

Country.	1901.	1912.	1913.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£	£
China ... ..	33,906	163,891	147,056	117,098	124,337	105,993
East Indies ... ..	204,315	658,430	817,987	433,481	567,863	866,781
Hong Kong ... ..	31,853	239,886	277,941	251,842	374,728	303,965
India and Ceylon ... ..	417,291	723,007	686,924	1,042,412	927,516	1,779,250
Japan ... ..	123,355	1,169,335	1,429,310	1,966,944	3,287,979	3,726,788
Philippine Islands ... ..	302,086	565,345	545,080	375,547	189,480	224,435
Straits Settlements ... ..	113,407	790,043	958,661	541,714	536,340	744,800
Total ... ..	1,226,213	4,309,937	4,862,959	4,729,038	6,008,243	7,752,015

## BUTTER.

Country.	1901.	1912.	1913.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£	£
China ...	1,987	35,789	30,993	21,227	25,532	35,096
East Indies ...	12,172	87,439	91,365	102,894	133,596	234,999
Hong Kong ...	8,555	25,570	21,711	19,489	13,632	23,333
India and Ceylon ...	9,696	12,381	13,830	10,730	10,990	11,265
Japan ...	1,504	5,713	4,864	1,986	2,076	2,868
Philippine Islands ...	21,061	40,296	34,091	17,319	6,998	18,499
Straits Settlements...	9,863	35,863	33,786	25,137	26,234	30,700
Total...	64,838	243,051	230,640	198,782	219,058	356,760

The exports of butter given above for the year 1916-17 were shipped from the several States as follows:—New South Wales, £79,058; Victoria, £245,137; Queensland, £32,565.

## COAL.

Country.	1901.	1912.	1913.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£	£
China ...	...	510	940	...	...	...
East Indies ...	43,280	106,844	144,185	90,453	50,727	16,355
Hong Kong ...	7,653	192	...	635	...	...
India and Ceylon ...	17,639	66,699	33,018	40,446	40,703	22,421
Japan ...	1	...	...	...	...	...
Philippine Islands...	59,936	54,932	25,939	48,936	5,361	...
Straits Settlements...	26,611	62,005	81,771	44,751	25,206	28,035
Total ...	155,120	291,182	285,853	225,321	121,997	66,811

These exports of coal are chiefly from New South Wales.

## COPPER.

Country.	1901.	1912.	1913.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£	£
China ...	...	28,406	8,275	...	...	...
Hong Kong ...	...	12,293	1,638	...	14,794	...
India and Ceylon ...	39,375	45,403	71,097	127,959	216,085	279,520
Japan ...	...	5,478	3,748	...	...	...
Total ...	39,375	91,580	84,758	127,959	230,879	279,520

All the copper exported to the East during 1916-17 was shipped from New South Wales.

## GRAIN AND PULSE.—WHEAT.

Country.	1901.	1912.	1913.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£	£
East Indies ...	9	22	6	14	7	5
India and Ceylon ...	35,660	316	316	201	91	377
Japan ...	11,016	7,844	226,287	42,933	...	...
Philippine Islands ...	...	418	28	12	1	17
Straits Settlements...	...	5	4	9	1,274	...
Total ...	46,685	8,605	226,641	43,169	1,373	399

The exports of wheat given on previous page for the year 1916-17 were shipped from the following States :—New South Wales, £20 ; Victoria, £377 ; Western Australia, £2.

## GRAIN AND PULSE.—FLOUR.

Country.	1901.	1912.	1913.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£	£
China ...	1,147	15,918	19,780	5,244	5,142	3,463
East Indies ...	82,566	326,093	416,302	67,560	183,466	266,925
Hong Kong ...	4,489	17,133	20,440	1,233	17,162	7,971
India and Ceylon ...	22,275	44,715	47,534	21,632	4,579	1,248
Japan ...	7,206	3,990	5,246	17	633	3,715
Philippine Islands ...	4,046	149,500	128,311	33,528	42,169	129,015
Straits Settlements...	13,363	133,054	187,499	32,998	63,780	128,420
Total ...	135,092	690,403	825,112	162,262	316,931	540,757

The flour exported during 1916-17, as above, was shipped from the several States as follows :—New South Wales, £320,017 ; Victoria, £164,431 ; Queensland, £29 ; South Australia, £133 ; Western Australia, £56,147.

## GRAIN AND PULSE, OTHER THAN WHEAT AND FLOUR.

Country.	1901.	1912.	1913.	1914-15.	1915-16.	1916 17.
	£	£	£	£	£	£
China ...	43	66	677	3	...	1,946
East Indies ...	...	1,617	1,623	1,117	1,319	3,173
Hong Kong ...	777	129	3	20	3	21
India and Ceylon ...	3,033	6,061	10,448	14,010	7,128	4,404
Japan ...	7	61	67	18	130	...
Philippine Islands ...	946	4,942	2,167	573	1,211	1,280
Straits Settlements...	...	1,097	942	790	411	929
Total ...	4,806	13,973	15,927	16,531	10,202	11,753

The exports given above for 1915-16 were shipped from the following States :—New South Wales, £3254 ; Victoria, £8402 ; Queensland, £6 ; South Australia, £51 ; Western Australia, £40.

## HAY AND CHAFF, AND COMPRESSED FODDER.

Country.	1901.	1912.	1913.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£	£
China ...	2,934	33	69	...	...	...
East Indies ...	14	1,634	920	920	702	613
Hong Kong ...	28	230	1,350	373	642	164
India and Ceylon ...	5,848	18,621	15,077	44,277	17,267	14,037
Japan ...	57	58	79	24	87	10
Philippine Islands ...	2,582	23,695	24,254	7,644	8,251	3,861
Straits Settlements	1,618	5,939	3,930	3,318	1,729	1,444
Total ...	13,081	50,210	45,679	56,556	28,678	20,129

The exports given above for the year 1916-17 were shipped from the several States as follows :—New South Wales, £151 ; Victoria, £19,924 ; Western Australia, £54.

**HORSES.**

Country.	1901.	1912.	1913.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£	£
China ...	4,460	625	...	...	...	...
East Indies ...	2,105	13,459	21,465	1,243	5,352	3,818
Hong Kong ...	775	40	...	...	...	...
India and Ceylon ...	78,723	132,589	108,765	387,046	250,710	312,721
Japan ...	100	2,650	2,836	875	1,900	850
Philippine Islands ...	190	5,449	2,061	...	1,200	60
Straits Settlements...	15,513	11,322	11,614	555	3,755	6,427
Total ...	101,866	166,134	146,741	389,719	262,917	323,876

The horses exported to the above countries during 1916-17 were shipped from the following States:—New South Wales, £61,057; Victoria, £61,097; Queensland, £184,182; South Australia, £16,740; Western Australia, £800.

**LEAD, FIG.**

Country.	1901.	1912.	1913.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£	£
China ...	6,102	33,481	50,902	30,695	18,564	19,941
East Indies ...	18	232	1,381	...	...	...
Hong Kong ...	1,257	92,199	101,280	105,140	165,643	45,414
India and Ceylon ...	315	41,408	39,156	72,317	56,658	92,020
Japan ...	2,750	233,154	250,978	232,637	206,261	435,248
Philippine Islands ...	12	1,212	547	77	61	...
Straits Settlements...	...	789	1,050	133	1,705	...
Total... ..	10,454	407,475	445,294	440,999	448,892	592,623

The above lead is almost entirely from the Broken Hill mines of New South Wales.

**MEATS.—PRESERVED BY COLD PROCESS.**

Country.	1901.	1912.	1913.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£	£
China ...	...	...	...	354	6	...
East Indies ...	98	950	6,118	8,875	18	...
Hong Kong ...	3,195	9,109	10,347	7,502	5,715	9,481
India and Ceylon ...	5,907	6,864	9,072	9,570	8,102	10,483
Japan ...	19	15	433	4	1	...
Philippine Islands ...	153,250	182,724	199,199	177,696	89,408	13,143
Straits Settlements...	...	43,453	45,845	58,753	52,123	66,983
Total... ..	162,469	243,115	271,014	262,754	155,373	100,090

The exports to the above-mentioned Eastern countries during 1916-17 of meats preserved by cold process were shipped from the following States:—New South Wales, £46,077; Queensland, £54,013.

**MEATS.—OTHER THAN MEATS PRESERVED BY COLD PROCESS.**

Country.	1901.	1912.	1913.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£	£
China ...	491	5,902	7,138	2,885	1,075	1,646
East Indies ...	15,035	16,449	20,272	16,679	9,263	19,476
Hong Kong ...	571	3,220	4,633	5,655	1,859	3,096
India and Ceylon ...	11,464	3,143	8,279	50,159	100,901	382,150
Japan ...	893	1,778	1,292	656	975	853
Philippine Islands ...	2,617	29,043	28,758	18,395	10,590	14,645
Straits Settlements	531	6,285	13,171	11,015	6,229	9,553
Total ...	31,602	65,820	83,543	105,454	130,892	431,419

The exports given above for the year 1916-17 were shipped from the following States:—New South Wales, £80,484; Victoria, £15,087; Queensland, £305,996; South Australia, £29,848; Northern Territory, £4.

**SANDALWOOD.**

Country.	1901.	1912.	1913.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£	£
China ...	7,905	16,619	5,593	27,544	9,316	5,554
Hong Kong ...	53,991	11,567	41,476	48,338	51,087	71,460
India and Ceylon ...	...	3,455	4,560	6,424	4,602	4,429
Japan ...	...	...	...	240	78	102
Straits Settlements	15,341	1,034	5,931	9,854	6,410	6,504
Total ...	77,237	32,675	57,560	92,400	71,493	88,049

The exports of sandalwood in 1916-17 were shipped from New South Wales, £319; Queensland, £15,259; and Western Australia, £72,471.

**SKINS, HOOFS, HORNS, BONES, SINEWS, AND TALLOW.**

Country.	1901.	1912.	1913.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£	£
China ...	...	661	6	...	128	...
East Indies ...	...	920	1,149	2,048	318	2
Hong Kong ...	1,234	403	333	150	8	427
India and Ceylon ...	2,761	13,538	17,523	17,369	6,736	6,647
Japan ...	11,829	109,562	88,193	113,169	57,015	198,040
Philippine Islands ...	165	397	562	987	312	91
Straits Settlements	430	808	713	720	395	165
Total ...	16,419	126,289	108,479	134,443	64,912	205,372

The above exports of skins, etc., in 1916-17 were shipped from the several States as follows:—New South Wales, £133,107; Victoria, £15,738; Queensland, £56,527.

**TIN ORE.**

Country.	1901.	1912.	1913.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£	£
Japan ...	...	...	...	...	104	...
Straits Settlements	4,096	387,524	447,875	179,962	239,457	222,281
Total ...	4,096	387,524	447,875	179,962	239,561	222,281

The export of tin ore to the Straits Settlements—the centre of the world's tin production—was for the purpose of treatment, and was shipped from the several States during 1916-17 as follows:—New South Wales, £147,165; Queensland, £63,669; Northern Territory, £11,447.

**TIMBER, UNDRESSED.**

Country.	1901.	1912.	1913.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£	£
China ...	4,090	2	2	17,869	...	2
East Indies ...	22	1,691	554	252	31	3
Hong Kong ...	...	3	2,155	142	...	...
India and Ceylon ...	61,246	217,556	175,757	123,692	233	36,041
Japan ...	418	972	959	73	63	967
Philippine Islands ...	9,278	414	449	...	...	...
Straits Settlements...	4,861	506	453	129	100	34
Total ...	79,915	221,144	180,329	142,157	427	37,047

The above exports of timber during 1916-17 from the several States were shipped as follows:—New South Wales, £741; Queensland, £265; Western Australia, £36,041.

**WOOL.**

Country.	1901.	1912.	1913.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£	£
East Indies ...	112	...	...	...	...	...
Hong Kong ...	...	23	...	...	...	...
India and Ceylon ...	7,853	18,739	30,586	30,739	32,442	87,860
Japan ...	48,653	703,371	735,018	1,502,576	2,587,091	2,470,414
Philippine Islands ...	...	...	...	210	...	...
Total...	56,618	722,133	765,604	1,533,525	2,619,533	2,558,274

The wool exported to the East by the several States during 1916-17 was shipped as follows:—New South Wales, £2,022,730; Victoria, £87,860; Queensland, £447,684.

**§ 8. Trade of Commonwealth since Federation.**

1. **Classified Summary of Australian Trade.**—The following tables present the trade of the Commonwealth during each of the years 1901 and 1912 to 1916-17, arranged in classes according to the nature of the goods:—



## STATISTICAL CLASSIFICATION OF IMPORTS AND EXPORTS.

Class.	Articles.
I.	FOODSTUFFS of animal origin, excluding, however, living animals.
II.	FOODSTUFFS of vegetable origin, and common salt.
III.	BEVERAGES, non-alcoholic only, and the substances used in making them.
IV.	SPIRITS AND ALCOHOLIC LIQUORS, including spirits for industrial purposes, and such pharmaceutical preparations as are dutiable as spirits.
V.	TOBACCO, and all preparations thereof.
VI.	LIVE ANIMALS.
VII.	ANIMAL SUBSTANCES, mainly unmanufactured, which are not foodstuffs.
VIII.	VEGETABLE SUBSTANCES and non-manufactured fibres.
IX.	APPAREL, TEXTILES, and various manufactured fibres.
X.	OILS, FATS, AND WAXES.
XI.	PAINTS AND VARNISHES.
XII.	STONES and MINERALS, used industrially.
XIII.	SPECIE—gold, silver, and bronze.
XIV.	METALS, UNMANUFACTURED, and ORES.
XV.	METALS, PARTLY MANUFACTURED.
XVI.	METALS, MANUFACTURED, including machinery.
XVII.	LEATHER AND MANUFACTURES of leather, together with all substitutes therefor, and also INDIARUBBER AND INDIARUBBER MANUFACTURES.
XVIII.	WOOD AND WICKER, both raw and manufactured.
XIX.	EARTHENWARE, CEMENTS, CHINA, GLASS AND STONEWARE.
XX.	PAPER AND STATIONERY.
XXI.	JEWELLERY, TIMEPIECES, AND FANCY GOODS.
XXII.	OPTICAL, SURGICAL, AND SCIENTIFIC INSTRUMENTS.
XXIII.	DRUGS, CHEMICALS, AND FERTILIZERS.
XXIV.	MISCELLANEOUS.

## COMMONWEALTH IMPORTS ARRANGED IN CLASSES, 1901 and 1912 to 1916-17.

Classes.	1901.	1912.	1913.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£	£
I. Animal foodstuffs, etc. ...	793,365	1,037,693	947,697	1,265,068	1,797,407	1,156,816
II. Vegetable ...	2,925,985	4,455,662	3,315,825	3,686,926	7,984,132	3,655,149
III. Beverages (non-alcoholic), etc. ...	1,054,324	1,863,712	1,833,235	1,987,878	2,669,042	2,170,450
IV. Alcoholic liquors, etc. ...	1,845,438	2,022,986	2,095,896	1,780,927	1,488,937	1,985,895
V. Tobacco, etc. ...	717,915	1,045,841	1,114,949	902,471	969,043	1,115,010
VI. Live animals ...	40,306	243,489	145,215	135,259	158,588	81,765
VII. Animal substances, etc. ...	124,017	337,652	417,039	309,859	684,479	925,112
VIII. Vegetable " " ...	459,361	1,493,532	1,344,204	1,386,802	2,295,608	2,579,789
IX. Apparel, etc. ...	12,065,367	19,495,762	19,705,768	17,577,422	21,272,545	24,134,756
X. Oils, etc. ...	1,230,252	2,192,317	1,969,628	2,100,177	2,796,560	3,123,710
XI. Paints, etc. ...	385,049	676,861	609,859	610,113	595,905	666,983
XII. Stones, etc. ...	131,095	201,317	218,332	162,071	155,383	172,633
XIII. Specie ...	172,395	542,937	377,220	433,301	235,244	74,303
XIV. Metals, unmanufd., ores, etc. ...	984,327	1,488,167	1,575,734	788,872	846,918	466,848
XV. Metals, partly manufactured ...	1,062,309	1,424,261	1,500,436	955,791	1,123,726	1,210,872
XVI. Metals, manufactured ...	7,491,636	16,985,089	16,623,135	13,455,001	13,013,699	11,084,538
XVII. Leather, etc. ...	523,565	1,788,272	1,749,046	1,234,057	1,692,940	1,867,696
XVIII. Wood, etc. ...	1,814,382	3,565,445	3,673,753	2,565,473	2,107,949	1,819,227
XIX. Earthenware, etc. ...	925,101	1,445,090	1,580,615	1,208,186	1,355,299	1,112,887
XX. Paper, etc. ...	1,731,330	3,116,215	3,134,750	2,745,827	2,961,310	4,462,040
XXI. Jewellery, etc. ...	1,065,343	1,873,917	1,410,555	1,102,462	1,125,101	1,126,320
XXII. Instruments, etc. ...	218,437	517,677	754,589	543,463	607,530	720,263
XXIII. Drugs, etc. ...	1,472,162	2,394,162	2,493,192	2,425,689	3,000,984	3,130,397
XXIV. Miscellaneous ...	3,140,345	7,951,095	11,258,981	5,068,642	6,382,763	7,377,215
Grand total ...	42,433,811	78,158,600	79,749,653	64,431,837	77,521,142	76,228,679

\* Includes warships. £2,495,000.

The exports are shewn according to the same classification, and the usual distinction is made between exports of Australian produce and re-exports. It will be seen what a small proportion of the total exports is made up by re-exports.

**COMMONWEALTH EXPORTS ARRANGED IN CLASSES, AND DISTINGUISHING  
AUSTRALIAN PRODUCE AND THE PRODUCE OF OTHER COUNTRIES,  
1901 and 1912 to 1916-17.**

Classes.	1901.	1912.	1913.	1914-15.	1915-16.	1916-17.
<b>AUSTRALIAN PRODUCE.</b>						
	£	£	£	£	£	£
I. Animal foodstuffs, etc. ...	4,104,196	7,991,038	11,459,049	14,491,163	5,531,331	15,265,677
II. Vegetable foodstuffs, etc. ...	4,633,926	8,741,065	10,648,506	2,022,397	11,247,704	19,073,950
III. Beverages (non-alcoholic), etc. ...	2,598	4,895	5,742	16,635	17,415	18,514
IV. Alcoholic liquors, etc. ...	134,630	131,850	114,973	125,938	152,450	158,539
V. Tobacco, etc. ...	5,030	78,901	72,374	79,796	162,140	115,376
VI. Live animals ...	473,601	327,524	297,812	536,613	326,251	392,161
VII. Animal substances, etc. ...	16,754,006	31,283,280	32,332,945	25,903,510	29,358,579	31,248,788
VIII. Vegetable substances, etc. ...	142,060	173,685	194,982	193,457	183,819	197,558
IX. Apparel, etc. ...	42,142	76,912	72,307	104,260	194,578	330,886
X. Oils, etc. ...	843,755	1,845,916	2,512,265	2,052,692	835,015	1,549,259
XI. Paints, etc. ...	620	6,799	6,188	2,735	3,069	6,933
XII. Stones, etc. ...	1,041,974	1,160,962	1,133,528	741,996	541,855	470,845
XIII. Specie ...	8,884,816	9,057,444	710,180	1,485,736	8,938,742	11,255,271
XIV. Metals, unmanufact., ores, etc. ...	8,916,269	12,364,321	12,689,990	7,238,886	11,251,174	11,760,190
XV. Metals, partly manufactured ...	3,802	18,907	43,262	142,657	218,878	317,682
XVI. Metals, manufactured ...	117,662	303,219	380,299	176,344	287,135	262,823
XVII. Leather, etc. ...	660,692	715,961	688,373	1,267,985	1,244,062	1,291,349
XVIII. Wood, etc. ...	666,024	908,049	1,014,973	808,816	395,754	314,078
XIX. Earthenware, etc. ...	6,600	18,915	12,481	15,539	47,839	46,381
XX. Paper, etc. ...	22,171	71,905	66,806	55,597	60,178	61,202
XXI. Jewellery, etc. ...	67,978	170,962	170,147	34,708	31,247	41,337
XXII. Instruments, etc. ...	507	6,347	5,929	9,179	15,257	13,994
XXIII. Drugs, etc. ...	86,299	267,946	269,387	313,860	477,832	436,413
XXIV. Miscellaneous ...	130,418	234,760	235,649	302,074	270,221	410,467
<b>Total ...</b>	<b>47,741,776</b>	<b>75,961,563</b>	<b>75,138,147</b>	<b>58,122,573</b>	<b>71,792,525</b>	<b>95,039,973</b>

**OTHER PRODUCE.**

	£	£	£	£	£	£
I. Animal foodstuffs, etc. ...	35,291	23,486	19,642	27,675	129,112	£115,744
II. Vegetable foodstuffs, etc. ...	80,371	170,060	161,886	476,367	217,415	189,456
III. Beverages (non-alcoholic), etc. ...	43,308	78,329	65,080	104,968	117,493	181,766
IV. Alcoholic liquors, etc. ...	55,732	42,407	39,066	71,255	83,905	68,318
V. Tobacco, etc. ...	61,753	52,501	55,155	61,895	70,010	86,243
VI. Live animals ...	105	5,433	2,806	4,687	1,749	6,906
VII. Animal substances, etc. ...	10,070	5,709	6,892	1,315	191,228	448,815
VIII. Vegetable substances, etc. ...	17,625	65,955	28,262	17,733	85,300	121,278
IX. Apparel, etc. ...	171,014	204,565	197,971	240,351	288,323	344,569
X. Oils, etc. ...	42,292	52,019	62,687	57,914	75,017	103,990
XI. Paints, etc. ...	15,186	8,263	7,818	6,222	7,897	9,259
XII. Stones, etc. ...	2,043	1,846	1,296	1,125	1,816	1,514
XIII. Specie ...	816,921	1,420,151	1,481,765	508,664	611,219	265,065
XIV. Metals, ores, etc. ...	9,744	23,414	34,136	40,481	5,941	9,608
XV. Metals, partly manufactured ...	13,806	25,404	7,748	10,831	22,694	16,894
XVI. Metals, manufactured ...	196,334	268,603	269,001	248,497	260,743	292,246
XVII. Leather, etc. ...	13,074	55,210	71,532	42,146	45,863	74,514
XVIII. Wood, etc. ...	33,135	33,627	34,305	33,266	38,891	25,861
XIX. Earthenware, etc. ...	22,337	15,702	16,846	16,172	19,946	20,342
XX. Paper, etc. ...	52,171	111,817	79,512	71,276	70,555	62,501
XXI. Jewellery, etc. ...	54,431	87,186	89,845	30,331	39,073	28,976
XXII. Instruments, etc. ...	13,555	93,072	65,944	67,941	72,791	82,547
XXIII. Drugs, etc. ...	42,976	55,367	60,026	66,014	101,269	101,854
XXIV. Miscellaneous ...	121,122	234,401	574,431	272,922	428,146	257,243
<b>Total ...</b>	<b>1,954,396</b>	<b>3,134,527</b>	<b>3,433,622</b>	<b>2,470,003</b>	<b>2,985,796</b>	<b>2,915,509</b>

EXPORTS ARRANGED IN CLASSES, AND DISTINGUISHING AUSTRALIAN PRODUCE  
AND THE PRODUCE OF OTHER COUNTRIES, 1901 and 1912 to 1916-17.—Continued.

Classes.	1901.	1912.	1913.	1914-15.	1915-16.	1916-17.
<b>TOTAL EXPORTS.</b>						
I. Animal foodstuffs, etc. ...	£ 4,139,487	£ 8,014,524	£ 11,478,691	£ 14,518,838	£ 5,660,443	£ 15,381,421
II. Vegetable foodstuffs, etc. ...	4,714,297	8,911,125	10,810,392	2,498,764	11,465,119	19,263,406
III. Beverages (non-alcoholic), etc. ...	45,906	83,224	70,772	121,628	134,908	200,540
IV. Alcoholic liquors, etc. ...	190,362	174,257	154,059	197,193	236,355	226,857
V. Tobacco, etc. ...	66,783	131,402	127,529	141,621	232,150	201,619
VI. Live animals ...	473,706	332,957	300,618	541,300	328,000	399,067
VII. Animal substances, etc. ...	16,764,076	31,288,989	32,339,837	25,904,825	29,549,807	31,697,603
VIII. Vegetable substances, etc. ...	159,685	239,640	223,244	211,190	269,019	318,836
IX. Apparel, etc. ...	213,156	281,477	270,278	344,611	482,901	675,455
X. Oils, etc. ...	886,047	1,897,935	2,574,952	2,110,606	910,032	1,653,249
XI. Paints, etc. ...	15,806	15,062	14,006	8,957	10,966	16,192
XII. Stones, etc. ...	1,044,017	1,162,808	1,134,824	743,121	543,171	472,359
XIII. Specie ...	9,731,737	10,477,586	2,191,945	1,994,400	9,549,961	11,520,336
XIV. Metals, unmanufactd., ores, etc. ...	8,926,013	12,387,735	12,724,126	7,279,367	11,257,115	11,769,798
XV. Metals, partly manufactured ...	17,609	44,311	51,010	153,488	241,572	334,576
XVI. Metals, manufactured ...	313,996	571,822	649,300	424,841	547,378	555,069
XVII. Leather, etc. ...	673,766	771,171	759,905	1,310,131	1,289,925	1,365,863
XVIII. Wood, etc. ...	698,159	941,676	1,049,278	832,082	434,645	339,939
XIX. Earthenware, etc. ...	29,937	34,617	29,327	31,711	67,785	66,723
XX. Paper, etc. ...	74,342	183,723	146,318	126,873	130,733	123,703
XXI. Jewellery, etc. ...	122,409	258,148	259,992	65,039	70,320	70,313
XXII. Instruments, etc. ...	14,062	99,419	71,873	77,120	88,048	96,541
XXIII. Drugs, etc. ...	129,275	323,313	329,413	379,874	579,101	538,267
XXIV. Miscellaneous ...	251,540	469,161	810,080	574,996	698,367	667,710
<b>Total ...</b>	<b>49,696,172</b>	<b>79,096,090</b>	<b>78,571,769</b>	<b>60,592,576</b>	<b>74,778,321</b>	<b>97,955,482</b>

## § 9. Movement of Specie and Bullion.

1. *Specie and Bullion.*—The following tables shew the value of gold and silver bullion and specie, including bronze specie, imported and exported during the years 1901 and 1912 to 1916-17 :—

### COMMONWEALTH IMPORTS AND EXPORTS OF SPECIE AND BULLION, 1901 and 1912 to 1916-17.

Items.	1901.	1912.	1913.	1914-15.	1915-16.	1916-17.
<b>IMPORTS.</b>						
Gold—Specie ...	£ 3,710	£ 244,737	£ 187,025	£ 3,447	£ 6,613	£ ...
Bullion ...	762,415	1,125,807	1,171,382	432,680	544,338	197,755
<b>Total ...</b>	<b>766,125</b>	<b>1,370,544</b>	<b>1,358,407</b>	<b>436,127</b>	<b>550,951</b>	<b>197,755</b>
Silver—Specie ...	158,656	277,614	177,045	423,836	217,630	44,968
Bullion ...	54	6,496	4,942	2,075	661	316
<b>Total ...</b>	<b>158,710</b>	<b>284,110</b>	<b>181,987</b>	<b>425,911</b>	<b>218,291</b>	<b>45,284</b>
Bronze—Specie ...	10,029	20,586	13,150	6,018	11,001	29,235
<b>Grand total ...</b>	<b>934,864</b>	<b>1,675,240</b>	<b>1,553,544</b>	<b>868,056</b>	<b>780,243</b>	<b>272,274</b>

## COMMONWEALTH IMPORTS AND EXPORTS OF SPECIE AND BULLION, 1901 AND 1912 TO 1916-17.—Continued.

Items.	1901.	1912.	1913.	1914-15.	1915-16.	1916-17.
EXPORTS.						
Gold—Specie ... ..	£ 9,708,037	£ 10,440,058	£ 2,092,891	£ 1,941,447	£ 9,516,731	£ 11,481,108
Bullion ... ..	4,616,039*	1,403,621	972,160	479,797	841,058	1,479
Total ... ..	14,324,076	11,843,679	3,065,051	2,421,244	10,357,789	11,482,587
Silver—Specie ... ..	23,370	37,537	99,034	52,238	32,935	39,200
Bullion ... ..	922,443†	580,384	634,630	433,469	367,069	493,690
Total ... ..	945,813	617,921	733,664	485,707	400,004	532,890
Bronze—Specie ... ..	330	...	20	715	295	28
Total { Australian produce ... ..	14,423,298	11,039,919	2,300,955	2,366,346	10,146,869	11,750,440
{ Other produce ... ..	846,921	1,421,681	1,497,780	541,320	611,219	265,065
Grand total ... ..	15,270,219	12,461,600	3,798,735	2,907,666	10,758,088	12,015,505

\* Includes gold contained in matte. The value of gold contained in matte exported during 1912 was £473,791; 1913, £403,869, 1914-15, £203,606, 1915-16, £197,469, and 1916-17, £129,710. † Includes silver contained in matte. The value of silver contained in matte exported during 1912 was £255,728; 1913, £266,444; 1914-15, £247,012; 1915-16, £336,220; and 1916-17, £325,668.

## COMMONWEALTH IMPORTS AND EXPORTS OF SPECIE AND GOLD AND SILVER BULLION FROM AND TO PRINCIPAL COUNTRIES, 1916-17.

Country.	Imports.			Exports.		
	Specie.	Bullion.	Total.	Specie.	Bullion.	Total.
United Kingdom ... ..	£ 12,464	£ 494	£ 12,958	£ 3,438	£ 2,340	£ 5,778
Canada ... ..	...	8	8	6,000,000	...	6,000,000
Ceylon ... ..	...	...	...	...	47,475	47,475
Fiji ... ..	...	...	...	200	1,567	1,767
Gilbert and Ellice Islands Colony ... ..	...	...	...	1,077	...	1,077
Hong Kong ... ..	1	...	1	125	...	125
India... ..	29,002	...	29,002	750,000	443,685	1,193,685
New Zealand ... ..	...	173,488	173,488	224,983	102	225,085
Papua ... ..	...	22,768	22,768	911	...	911
Solomon Islands ... ..	...	...	...	4,341	...	4,341
Union of South Africa ... ..	5,620	...	5,620	...	...	...
Total British Countries	47,087	196,758	243,845	6,985,075	495,169	7,480,244
Bismarck Archipelago ... ..	25,616	...	25,616	25,131	...	25,131
Marshall Islands ... ..	...	...	...	4,100	...	4,100
Molucca Islands ... ..	...	...	...	300	...	300
New Caledonia ... ..	...	...	...	200	...	200
New Hebrides ... ..	...	...	...	3,129	...	3,129
Pleasant Island ... ..	1,500	...	1,500	1,500	...	1,500
Samoa (German) ... ..	...	...	...	901	...	901
United States of America ... ..	...	1,313	1,313	4,500,000	...	4,500,000
Total Foreign Countries	27,116	1,313	28,429	4,535,261	...	4,535,261
Grand total ... ..	74,203	198,071	272,274	11,520,336	495,169	12,015,505

**2. Imports of Bullion and Specie.**—Of the total imports of bullion and specie into the Commonwealth during 1916-17, 72.63 per cent. was in the form of gold bullion, and was received almost entirely from New Zealand for the purpose of minting.

**3. Exports of Bullion and Specie.**—Of the total exports of bullion and specie during 1916-17, gold represented 95.58 per cent., practically the whole of which was in the form of specie.

The countries which have appeared as the largest recipients of gold from Australia in normal times are New Zealand, India, Union of South Africa, Hong Kong, Ceylon and United Kingdom, but as large amounts of gold recorded as exported to Ceylon, are shipped *under option*, and may be despatched thence to any other country, the actual amount received by each country cannot be stated. Moreover, the dimensions of the gold shipments from Australia to particular countries are without any significance regarding the business transactions between Australia and those countries. Shipments of gold merely represent a contribution towards the liquidation of liabilities or the establishment of credit abroad; and Great Britain being the principal creditor and banker, shipments of gold from the Commonwealth are for the most part directed by London bankers to suit their requirements. The large shipments of gold to the United States of America and to Canada during the last two years were due to the exigencies of the war.

## § 10. Effects of Prices on the Values of Exports.

**1. Significance of Price in Totals.**—In comparing the value of exports from, and also imports into, any country for a series of years, the question naturally arises as to how much any variation in the aggregate value is due to fluctuations in prices, and how much to increase or decrease of actual quantities, for, in aggregates expressed only in value—the only possible method when the commodities differ—the two sources of variation are confused.

The scheme of comparison followed is to select all such articles of export as are recorded by units of quantity, and to apply to the quantities exported during each year the average price per unit ruling in some year, arbitrarily taken for the purposes of comparison as the basic year. The ratio which the total actually recorded for the year under review bears to the total obtained by applying to the quantities of the year under review the average prices ruling during the basic year, may be called the “price-level” of the latter—as compared with the former—for the group of commodities considered, and may be taken as a measure of the effect of the change of price in the intervening period. Since the value of the articles used in the calculations represents as much as 88 per cent. of all exports during 1916-17—after excluding specie and gold bullion, which are not subject to price changes—a fairly extensive basis is afforded on which to found an estimate of the effect of prices over the full range of exports.

**2. Effect of Prices.**—The following table shows the values of exports as actually recorded in each year, together with the values computed on the assumption that the prices of 1901 were maintained. The table also shows the yearly “price-levels,” based upon the results so ascertained.

This table obviously furnishes a measure of the influence of prices on the value of exports of each year since 1901. Column IV.—values computed on 1901 prices—represents the volume of exports (less specie and gold bullion), expressed in the common

denomination of value, and from the figures therein it will be seen that, had the prices of 1901 remained constant, the value of the exports of merchandise during the year 1916-17 for example, would have been £45,732,099 only, instead of £86,433,667—the value actually recorded. The difference between these amounts (£40,701,568) results from a rise of 89.0 per cent. (i.e., from 1000 to 1890) in the price of commodities for the period intervening between 1901 and 1916-17.

It will be seen from the column of "Price-Levels" that prices as indicated by the Commonwealth exports rose steadily from the beginning of the decade to the year 1907. The financial crisis in the United States of America caused a pronounced fall in the prices of 1908. Owing to the large proportion of the aggregate value of exports represented by wool and wheat, any change in the price of these commodities has a marked effect on the index-numbers for the total group of exports, and it is to their influence that the fall of prices in 1911 is mainly due.

### EFFECT OF PRICES ON THE VALUE OF COMMONWEALTH EXPORTS, AND EXPORT PRICE LEVELS FOR THE PERIOD 1901 to 1916-17.

(BASIC YEAR, 1901.)

Year.	Exports of Specie and Gold Bullion.	Other Exports.		Total Exports (including Specie and Gold Bullion).		Price-Levels.* Year 1901 = 1000.
		Values as Recorded.	Values Computed on 1901 Prices.	Values as Recorded.	Values Computed on 1901 Prices.	
I.	II. £	III. £	IV. £	V. £	VI. £	VII.
1901 ...	14,347,776	35,348,396	35,348,396	49,696,172	49,696,172	1000
1902 ...	14,568,640	29,346,447	27,375,976	43,915,087	41,944,616	1072
1903 ...	18,408,702	29,841,410	26,697,120	48,250,112	45,105,822	1118
1904 ...	16,914,691	40,571,224	36,139,840	57,485,915	53,054,531	1123
1905 ...	10,977,111	45,863,924	38,465,210	56,841,035	49,442,321	1192
1906 ...	16,895,059	52,842,704	42,295,310	69,737,763	59,190,369	1249
1907 ...	10,571,263	62,252,984	47,557,141	72,824,247	58,128,404	1309
1908 ...	13,608,531	50,702,527	43,072,809	64,311,058	56,681,340	1177
1909 ...	8,390,376	56,928,460	46,973,200	65,318,836	55,363,576	1212
1910 ...	4,178,097	70,313,053	56,571,308	74,491,150	60,749,405	1243
1911 ...	11,561,639	67,920,619	58,104,744	79,482,258	69,666,383	1169
1912 ...	11,881,216	67,214,874	53,175,536	79,096,090	65,056,752	1264
1913 ...	3,164,105	75,407,664	58,683,007	78,571,769	61,847,112	1285
1914-15 ...	2,474,197	58,118,379	44,678,912	60,592,576	47,153,109	1301
1915-16 ...	10,391,019	64,387,302	40,056,884	74,778,321	50,447,903	1607
1916-17 ...	11,521,815	86,433,667	45,732,099	97,955,482	57,253,914	1890

\* These are index-numbers for the total group of exports, excluding specie and gold bullion.

3. Influence of Quantity and Price on Total Increased Value of Exports.—The estimated actual and relative effects of the influence of—(i.) increase or decrease in the exports of specie and gold bullion, (ii.) increase or decrease of quantities of other exports, (iii.) variation of prices on the value of the exports of each year since 1905 compared with 1901, are shewn on the next page.

From the following figures it will be seen that exports of 1916-17, for example, of specie and gold bullion compared with 1901, shew a decrease of 19.70 per cent., other exports (merchandise) shew an increase of 29.37 per cent. in quantities, and an increase of 89.01 per cent. in the group-prices. These several influences effect an aggregate increase of £48,259,310, or 97.11 per cent. over 1901 as follows:—By increased quantities of merchandise, £10,383,703 (21.51 per cent.); by increased prices, £40,701,568 (84.34 per cent.); accompanied by a decrease of £2,825,961 (5.85 per cent.) in the exports of specie and

gold. Of the greater value of merchandise exported during 1916-17 as compared with 1901, 20.33 per cent. represented increased production, and 79.67 per cent. was due to higher prices.

**ANALYSIS OF INFLUENCE OF QUANTITY AND PRICE ON INCREASE OR DECREASE IN COMMONWEALTH EXPORTS, 1905 to 1916-17 COMPARED WITH 1901.**

Year.	Particulars.	Variation above (+) or below (—) 1901 Exports due to change in:—			Total Variation above (+) or below (—) Value of 1901 Exports.
		Export of Specie and Gold.	Quantity of Export other than Specie and Gold.	Prices of Export other than Specie and Gold.	
1905.	Variation, actual ... .. £	—3,370,665	+3,116,814	+7,398,714	+7,144,863
	Relative magnitude of variation. Total	—47.18	+43.62	+103.56	+100
	variation taken as 100 ... ..	—23.48	+ 8.82	+ 19.24	+14.37
	Variation, per cent. ... ..				
1906.	Variation, actual ... .. £	+2,547,283	+6,946,914	+10,547,394	+20,041,591
	Relative magnitude of variation. Total	+12.71	+34.66	+52.63	+100
	variation taken as 100 ... ..	+17.76	+19.65	+24.94	+40.32
	Variation, per cent. ... ..				
1907.	Variation, actual ... .. £	—3,776,513	+12,206,745	+14,695,843	+23,128,075
	Relative magnitude of variation. Total	—16.32	+52.78	+63.54	+100
	variation taken as 100 ... ..	—26.32	+34.55	+30.90	+46.56
	Variation, per cent. ... ..				
1908.	Variation, actual ... .. £	—739,245	+7,724,413	+7,629,718	+14,614,886
	Relative magnitude of variation. Total	— 5.06	+52.85	+52.21	+100
	variation taken as 100 ... ..	— 5.15	+21.85	+17.72	+29.43
	Variation, per cent. ... ..				
1909.	Variation, actual ... .. £	—5,957,400	+11,624,804	+9,955,260	+15,622,664
	Relative magnitude of variation. Total	—38.13	+74.40	+63.73	+100
	variation taken as 100 ... ..	—41.52	+32.89	+21.19	+31.43
	Variation, per cent. ... ..				
1910.	Variation, actual ... .. £	—10,169,679	+21,222,912	+13,741,745	+24,794,978
	Relative magnitude of variation. Total	—41.01	+85.59	+55.42	+100
	variation taken as 100 ... ..	—70.88	+60.04	+24.32	+49.90
	Variation, per cent. ... ..				
1911.	Variation, actual ... .. £	—2,786,137	+22,756,348	+9,815,875	+29,786,086
	Relative magnitude of variation. Total	— 9.35	+76.40	+39.95	+100
	variation taken as 100 ... ..	—19.42	+64.37	+16.89	+59.95
	Variation, per cent. ... ..				
1912.	Variation, actual ... .. £	—2,466,560	+17,827,140	+14,039,338	+29,399,918
	Relative magnitude of variation. Total	— 8.39	+60.64	+47.75	+100
	variation taken as 100 ... ..	—17.19	+50.43	+26.40	+59.16
	Variation, per cent. ... ..				
1913.	Variation, actual ... .. £	—11,183,671	+23,334,611	+16,724,657	+28,875,597
	Relative magnitude of variation. Total	—38.73	+80.81	+57.92	+100
	variation taken as 100 ... ..	—77.95	+66.01	+28.50	+58.10
	Variation, per cent. ... ..				
1914	Variation, actual ... .. £	—11,873,579	+9,330,516	+13,439,467	+10,896,404
-15.	Relative magnitude of variation. Total	—108.98	+85.63	+123.35	+100
	variation taken as 100 ... ..	— 82.76	+26.40	+ 30.08	+21.92
	Variation, per cent. ... ..				
1915	Variation, actual ... .. £	—3,956,757	+4,708,488	+24,330,418	+25,082,149
-16.	Relative magnitude of variation. Total	—15.77	+18.77	+97.00	+100
	variation taken as 100 ... ..	—27.58	+13.32	+60.74	+50.47
	Variation, per cent. ... ..				
1916	Variation, actual ... .. £	—2,825,961	+10,383,703	+40,701,568	+48,259,310
-17.	Relative magnitude of variation. Total	— 5.85	+21.51	+84.34	+100
	variation taken as 100 ... ..	—19.70	+29.37	+89.01	+97.11
	Variation, per cent. ... ..				

The following table of index-numbers shews the variations in price of the different classes of goods exported grouped according to their industrial origin :—

### PRICE-LEVELS OF EXPORTS, 1901-17.

(BASIC YEAR, 1901.)

Year.	Agricultural Produce.	Pastoral Produce.	Dairy Produce.	Mineral Produce.	Miscellaneous.
1901 ... ..	1,000	1,000	1,000	1,000	1,000
1902 ... ..	1,127	1,115	1,155	844	1,114
1903 ... ..	1,118	1,223	943	818	1,196
1904 ... ..	1,109	1,243	906	863	946
1905 ... ..	1,186	1,302	994	924	920
1906 ... ..	1,161	1,356	1,020	1,115	976
1907 ... ..	1,174	1,426	1,042	1,149	1,022
1908 ... ..	1,414	1,231	1,113	910	995
1909 ... ..	1,490	1,234	1,030	895	1,040
1910 ... ..	1,472	1,270	1,071	894	907
1911 ... ..	1,260	1,196	1,085	930	1,220
1912 ... ..	1,415	1,271	1,196	1,123	1,237
1913 ... ..	1,347	1,324	1,126	1,109	1,203
1914-15 ... ..	1,410	1,340	1,183	1,114	1,179
1915-16 ... ..	1,929	1,572	1,493	1,543	1,079
1916-17 ... ..	1,756	2,050	1,669	1,868	1,187

The high index-numbers for mineral produce during 1906 and 1907 reflect the world's prices for that period, when prices registered for all the principal industrial metals touched a point higher than any previously recorded for many years.

The lower index for agricultural produce exported during 1916-17 is due to the lower price registered for wheat, viz., 4s. 10d. per bushel as against 5s. 6d. per bushel for 1915-16.

The movements in the miscellaneous group during the last three years are practically a reflection of the variations in the price of pearl-shell, which is by far the most important item in the group.

## § 11. External Trade of Australia and other Countries.

1. **Essentials of Comparisons.**—Direct comparisons of the external trade of any two countries are possible only when the general conditions prevailing therein, and the scheme of record, are sensibly identical. For example, in regard to the mere matter of record, it may be observed that in one country the value of imports may be the value at the port of shipment, while in another the cost of freight, insurance, and charges may be added thereto. Or again, the values of imports and exports in the one may be declared by merchants; whereas in the other they may be the official prices, fixed from time to time by a commission constituted for the purpose. The figures relating to the external trade of any country are also affected in varying degree by the extent to which they include transit or re-export trade. Including bullion and specie, the transit trade of Belgium, for example, represented, prior to the war, approximately 40 per cent. of the gross trade recorded; of Switzerland, 45 per cent.; of France, 20 per cent.; and of the United Kingdom, 15 per cent.; whereas in Australia the same element represents only 4 per cent., and in New Zealand even less.



2. "Special Trade" of Various Countries.—Special trade may be defined, agreeably to the practice of the British Board of Trade, as (a) imports entered for consumption in the country (as distinguished from imports for transhipment or re-export) and (b) exports of domestic products.

**TRADE OF VARIOUS COUNTRIES (IMPORTS FOR HOME CONSUMPTION AND EXPORTS OF DOMESTIC PRODUCTS, INCLUDING BULLION AND SPECIE) FOR LATEST AVAILABLE YEAR.**

Country.	Year ended.	Trade.			Trade per Inhabitant.		
		Imports.	Exports.	Total.	Im-ports.	Ex-ports.	Total.
		£	£	£	£ s. d.	£ s. d.	£ s. d.
C'WEALTH OF AUSTRALIA	30/6/17	74,466,000	95,040,000	169,506,000	15 5 6	19 9 11	34 15 5
	31/12/13	76,323,000	75,113,000	151,436,000	15 17 11	15 12 10	31 10 9
United Kingdom ...	31/12/16	851,544,000	506,546,000	1,358,090,000	19 2 10	11 7 10	30 10 8
	31/12/13	671,265,000	525,461,000	1,196,726,000	14 11 8	11 8 4	26 0 0
Canada ...	31/3/16	105,765,000	154,502,000	260,297,000	12 3 5	17 15 3	29 18 8
	31/3/14	132,019,000	89,915,000	221,934,000	16 13 6	11 7 2	28 0 8
New Zealand ...	31/12/16	26,028,000	32,976,000	59,004,000	23 13 6	29 19 10	53 13 4
	31/12/13	21,879,000	22,578,000	44,457,000	20 10 7	21 3 8	41 14 3
United States of America	30/6/16	532,741,000	913,876,000	1,446,617,000	5 3 1	8 16 10	13 19 11
	30/6/14	391,780,000	493,182,000	884,962,000	4 0 0	5 0 8	9 0 8
Argentine Republic ...	31/12/12	84,187,000	96,195,000	180,382,000	11 9 2	13 1 8	24 10 10
Austria-Hungary ...	"	149,026,000	121,345,000	270,371,000	2 19 4	2 8 4	5 7 8
Belgium ...	"	210,211,000	160,054,000	370,265,000	27 15 3	21 2 10	48 18 1
Brazil ...	"	63,425,000	74,649,000	138,074,000	2 12 1	3 1 2	5 13 3
Denmark ...	"	41,954,000	33,940,000	75,894,000	14 19 8	12 2 5	27 2 1
France ...	"	350,482,000	281,495,000	631,977,000	8 16 9	7 1 11	15 18 8
German Empire ...	"	541,675,000	447,392,000	989,067,000	8 3 9	6 15 3	14 19 0
Italy ...	"	149,113,000	97,536,000	246,649,000	4 5 2	2 15 8	7 0 10
Japan ...	"	66,007,000	57,972,000	123,979,000	1 5 3	1 2 2	2 7 5
Norway ...	"	28,756,000	18,147,000	46,903,000	11 15 9	7 8 10	19 4 7
Portugal ...	"	17,035,000	7,867,000	24,902,000	3 0 10	1 8 2	4 9 0
Spain ...	"	42,089,000	41,826,000	83,915,000	2 2 9	2 2 6	4 5 3
Sweden ...	"	44,095,000	42,257,000	86,352,000	7 17 4	7 10 10	15 8 2
Switzerland ...	"	81,577,000	55,629,000	137,206,000	21 6 7	14 10 11	35 17 6
Uruguay ...	31/12/11	9,333,000	8,840,000	18,173,000	7 18 6	7 10 1	15 8 7

In the above table the figures relate, as nearly as is possible, to imports entered for consumption in the various countries quoted, and to exports of their domestic products. It is to be noted, however, that these figures do not unequivocally denote the same thing throughout, since, in the United Kingdom and other manufacturing countries, raw or partly manufactured materials are imported as for home consumption, and, after undergoing some process of manufacture or further modification, are re-exported as domestic production, and further, the statistical records of many countries do not distinguish between bullion and specie imported for the use of the particular country (home consumption) and the amount in transit, nor between the exports of that produced within the country and that re-exported. Nevertheless, a comparison of this character reveals approximately the extent of the external trade which otherwise would not be manifest.

3. External Trade as a Measure of Prosperity.—External trade is not necessarily a measure of the prosperity of a country. It is, for example, obvious that the external trade of a community depends not only upon the aggregate of its requirements, but also upon the extent to which it fails to supply requirements from its own resources. A community largely self-contained, for example, may have but a small external trade per head, and yet, by virtue of its capacity to produce and manufacture its own raw material, may actually enjoy greater prosperity and a higher standard of living than another country whose external trade per head is much greater. The same observation applies equally

to comparisons of the trade of the same country at different periods. A young country, the industries and export trade of which are mainly connected with raw or natural products, may, for example, through internal development, find the growth of its external trade diminishing per head of population without necessarily suffering any real diminution in the well-being of its people. In this regard it is interesting to contrast the trade per head of say, Belgium, New Zealand, and the United States of America. Of all the countries mentioned in the foregoing table, the trade per unit of population for any year was greatest in New Zealand (£53 13s 4d.), with Belgium next, (£48 18s. 1d. in 1912), whereas for the United States the trade was only £13 9s. 11d. per inhabitant. Belgium and New Zealand represent conditions almost directly opposite to one another in the scheme of industrial development, yet the trade per head of each is abnormally high in comparison with that of most other countries. The large trade of Belgium was attained by the export of the products of highly organised manufacturing industries, based on the supplies of coal and iron within the country, in exchange for the raw materials for those industries and for food. In New Zealand the circumstances are reversed, inasmuch as in that country the energies of the people are mainly applied to primary industries, the produce of which, being largely in excess of local requirements, is exported in exchange for manufactured goods. The relatively small trade per head of population of the United States, as compared with Belgium or New Zealand, does not indicate that the people of the United States are in an inferior condition, but rather that their industries are more nearly balanced, with the result that a large proportion of the requirements of the nation is supplied from within its own territory, and consequently a smaller foreign trade is sufficient to supply the fewer remaining wants of the people, or, in other words, it indicates that as a nation the United States is more nearly self-contained.

The small foreign trade per inhabitant of Japan, Spain, and Portugal is, undoubtedly, due in some measure to a lower standard of living, but to what extent this factor is responsible, and how much is due to the capacity to supply all kinds of material wants from its own resources, could be ascertained only from a consideration of the general social and industrial conditions prevailing in each country. It is further obvious that circumstances may arise when enlargement of both imports and exports is actually a consequence of temporary economic difficulties. For example, in 1903, owing to shortage in the local supply, it became necessary to *import* wheat and flour into Australia to the value of £2,556,968, and to meet the charges for this by equivalent *exports*, the effect, considered *per se*, being to enlarge both. In this case the increase is not an evidence of prosperity, nor can the increase of imports into the United Kingdom during 1915, due to purchases of war material, be considered as an advantage to that country.

## § 12. Trade of the United Kingdom with Australia, compared with Competing Countries.

1. Proportion of Trade from United Kingdom and Competing Countries.—The failure of the United Kingdom to maintain the position formerly held in the import trade of Australia has been a matter of more than ordinary interest for some years. Since 1908, a permanent resident Commissioner, appointed by the British Board of Trade, has been established in Australia for the purpose of advising manufacturers and merchants in the United Kingdom with regard to Australian trade affairs. From the 8th August, 1907, the Commonwealth Customs Tariffs have provided special rates in

favour of goods from the United Kingdom, with the object of assisting the British manufacturer to retain or improve his position in this market. The percentages given in the following table shew the proportions of the imports into Australia from the United Kingdom, and from other countries mentioned, during each of the years 1886 to 1916-17:—

**PROPORTION OF COMMONWEALTH IMPORT TRADE FROM VARIOUS COUNTRIES,  
1886 to 1916-17.**

Year.	Percentage Proportions from—					Year.	Percentage Proportions from—				
	United K'dom	British Poss'ns	Germ'y.	United States.	Total Foreign C'tries.		United K'dom.	British Poss'ns.	Germ'y.	United States.	Total Foreign C'tries.
1886	73.37	11.23	2.05	6.11	15.40	1902	58.64	13.22	6.53	12.37	28.14
1887	73.26	12.50	2.28	5.37	15.24	1903	52.51	13.17	6.24	16.84	34.32
1888	71.62	12.03	2.71	6.48	16.35	1904	60.68	12.22	7.17	12.40	27.10
1889	68.98	13.45	3.65	6.67	17.57	1905	60.17	14.04	6.42	11.70	25.79
1890	68.08	12.66	4.77	6.54	19.26	1906	59.39	15.09	7.16	10.36	25.52
1891	70.15	11.40	4.53	6.79	18.45	1907	61.59	12.93	6.85	11.33	25.48
1892	70.74	11.37	4.32	6.04	17.89	1908	60.10	12.83	7.05	12.13	27.07
1893	72.78	12.14	3.40	4.98	15.08	1909	60.92	13.45	6.51	9.78	25.63
1894	71.92	11.96	3.78	5.39	16.13	1910	61.06	13.11	6.30	10.82	25.83
1895	71.62	11.46	4.42	5.95	16.92	1911	58.98	12.86	6.63	11.57	28.16
1896	68.28	10.74	5.31	8.59	20.98	1912	58.76	12.26	6.68	13.09	28.98
1897	66.22	10.72	5.75	10.10	23.06	1913	59.70	12.42	6.22	11.94	27.88
1898	66.62	10.88	5.86	10.16	22.50	1914-15	58.83	14.64	2.02	14.89	26.54
1899	61.85	11.75	6.07	13.00	26.40	1915-16	51.26	16.39	0.05	19.81	32.35
1900	61.28	11.28	6.54	12.16	27.44	1916-17	52.47	16.03	0.06	20.37	31.50
1901	59.47	11.22	6.59	13.80	29.31						

In order to draw accurate conclusions from the above table, however, special attention must be given to the nature of imports from the United States, since the imports from that country have in some years been increased by imports of breadstuffs, a trade in which the United Kingdom could not participate. The years affected by the imports of breadstuffs were 1886, 1889, 1896, 1897, 1903 and 1914-15. Increased imports of such items as kerosene oil and timber also tend to increase the proportion of imports from the United States without any prejudicial effect on the trade of the United Kingdom. Similar modification is not necessary in regard to Germany, as the nature of the imports from that country was substantially the same as from the United Kingdom.

It has already been pointed out in this chapter that, prior to the year 1905, imports into the Commonwealth were recorded only against the country whence they were directly imported. Although the values of direct imports do not afford satisfactory data, it is necessary for any comparison extending further back than 1905 to use such figures. These figures are unsatisfactory on account of the varying proportions of indirect trade.

In order to furnish a comparison free from such trade as, from its nature, is not open to the United Kingdom, the following table, shewing the direct imports during the years 1886, 1906, 1913, and 1916-17 of the principal classes of goods which enter largely into the trade of the countries named, has been prepared. It may be mentioned that the imports for the year 1886 were extracted from the "Statistical Registers" of the several States for a comparison—published in a previous issue—with the year 1906, and as their compilation involved a large amount of labour they are again utilised for comparison with the later years.

**PRINCIPAL DIRECT IMPORTS INTO THE COMMONWEALTH FROM THE UNITED KINGDOM, GERMANY, AND THE UNITED STATES, 1886, 1906, 1913 AND 1916-17.**

Nature of Imports.	Year.	United Kingdom.	Germany.	United States.	All Countries.
		£	£	£	£
Foodstuffs of animal origin ...	1886	348,950	5,603	70,959	674,296
	1906	293,950	24,319	146,781	697,830
	1913	385,307	61,096	269,826	947,697
	1916-17	247,450	956	319,027	1,156,316
Alcoholic liquors ...	1886	1,801,200	82,185	82,730	2,126,877
	1906	1,053,154	109,426	24,367	1,388,671
	1913	1,571,425	228,028	15,965	2,095,896
	1916-17	1,818,179	780	36,176	1,985,895
Apparel, textiles, etc. (incl. boots)	1886	9,845,182	54,350	15,336	10,316,989
	1906	11,066,201	418,776	221,362	13,508,844
	1913	15,494,151	578,096	394,783	19,705,768
	1916-17	17,439,818	6,166	1,648,524	24,134,766
Metals unmanufactured and partly manufactured* ...	1886	403,809	2,241	...	430,950
	1906	696,331	62,945	34,927	927,785
	1913	1,191,583	113,152	106,731	1,899,846
	1916-17	728,181	780	542,486	1,479,649
Manufactures of metal (including machinery) ...	1886	4,616,924	94,832	311,342	5,190,901
	1906	5,144,912	926,314	1,379,662	7,932,675
	1913	11,281,207	1,235,493	2,849,083	16,623,135
	1916-17	6,377,960	8,813	3,955,328	11,084,538
Paper and stationery ...	1886	1,260,531	21,038	39,700	1,340,627
	1906	1,207,729	261,684	288,509	1,838,474
	1913	2,083,736	255,234	230,803	3,134,750
	1916-17	2,157,165	2,184	860,322	4,462,040
Jewellery, timepieces, fancy goods	1886	659,833	24,206	57,477	789,127
	1906	740,850	140,950	59,151	1,045,164
	1913	964,966	182,040	90,508	1,410,555
	1916-17	625,847	4,160	182,492	1,126,320
Earthenware, cements, etc. ...	1886	755,907	78,762	24,711	938,476
	1906	316,252	227,390	37,344	688,510
	1913	700,561	459,090	60,203	1,580,615
	1916-17	533,076	3,583	244,271	1,112,937
Drugs, chemicals, fertilizers, etc.	1886	511,216	8,660	33,382	766,243
	1906	887,325	193,615	82,789	1,732,543
	1913	941,113	233,792	103,308	2,493,192
	1916-17	1,409,710	2,063	373,987	3,130,397
Leather, and mfs. thereof (excluding boots) and substitutes therefor, including indiarubber ...	1886	285,601	6,357	53,588	363,332
	1906	682,238	70,028	116,356	924,968
	1913	889,870	243,471	289,285	1,749,046
	1916-17	595,294	259	753,340	1,867,696
Total above-mentioned imports ...	1886	20,489,153	378,234	689,225	22,937,818
	1906	22,088,942	2,435,447	2,391,248	30,685,464
	1911	32,038,457	3,282,974	4,103,528	45,826,196
	1912	36,450,681	3,736,567	4,790,930	51,939,310
	1913	35,503,919	3,589,492	4,410,495	51,640,500
	1914-15	30,826,905	931,983	5,156,535	44,104,547
	1915-16	32,445,939	27,823	7,652,931	49,333,917
	1916-17	31,932,680	29,744	8,915,953	51,541,094
Total imports (less bullion and specie) ...	1886	24,974,939	699,075	2,087,213	33,885,234
	1906	26,437,768	3,202,990	4,633,331	42,413,995
	1911	39,145,829	4,427,153	7,747,470	64,934,538
	1912	45,630,869	5,194,594	9,448,643	76,483,360
	1913	47,422,225	4,956,828	9,522,502	78,196,109
	1914-15	37,466,500	1,296,861	9,584,665	63,563,781
	1915-16	39,508,832	1,296,917	15,358,433	76,740,899
	1916-17	39,983,227	47,675	15,526,998	75,956,405

\* Mainly pig iron and bar and rod iron. Gold and silver bullion is not included.

**PERCENTAGE OF TOTAL COMMONWEALTH IMPORTS OF PRINCIPAL DIRECT  
IMPORTS FROM UNITED KINGDOM, GERMANY, AND UNITED STATES, 1886,  
1906, 1913, AND 1916-17.**

Nature of Imports.	Year.	United Kingdom.	Germany.	United States.	All Countries
Foodstuffs of animal origin ...	1886	51.75	0.83	10.52	100
	1906	42.12	3.48	21.02	100
	1913	40.66	6.45	28.47	100
	1916-17	21.39	0.08	27.58	100
Alcoholic liquors ...	1886	84.69	3.86	3.89	100
	1906	75.84	7.88	1.75	100
	1913	74.98	10.88	0.76	100
	1916-17	91.56	0.04	1.82	100
Apparel, textiles, etc. (including boots)	1886	95.44	0.53	0.15	100
	1906	81.93	3.10	1.64	100
	1913	78.62	2.93	2.00	100
	1916-17	72.25	0.03	6.83	100
Metals unmanufactured and partly manufactured ...	1886	93.72	0.52	—	100
	1906	75.06	6.78	3.76	100
	1913	62.73	5.96	5.62	100
	1916-17	49.22	0.05	36.67	100
Manufactures of metals ...	1886	88.93	1.83	6.00	100
	1906	64.85	11.68	17.39	100
	1913	67.86	7.43	17.14	100
	1916-17	57.54	0.08	35.68	100
Paper and stationery ...	1886	94.03	1.57	2.96	100
	1906	65.69	14.23	15.69	100
	1913	66.47	8.14	7.36	100
	1916-17	48.34	0.05	19.28	100
Jewellery, timepieces, and fancy goods	1886	83.62	3.07	7.28	100
	1906	70.89	13.48	5.66	100
	1913	68.42	12.91	6.42	100
	1916-17	55.57	0.37	16.20	100
Earthenware, cements, etc. ...	1886	80.55	8.39	2.63	100
	1906	45.93	33.03	5.42	100
	1913	44.32	29.05	3.81	100
	1916-17	47.90	0.32	21.95	100
Drugs, chemicals, fertilizers, etc. ...	1886	66.71	1.13	4.36	100
	1906	51.22	11.18	4.78	100
	1913	37.75	9.38	4.14	100
	1916-17	45.03	0.07	11.95	100
Leather and mfs. thereof, and substitutes therefor, including indiarubber	1886	78.60	1.75	15.30	100
	1906	73.75	7.60	12.58	100
	1913	50.88	13.92	16.54	100
	1916-17	31.87	0.01	40.34	100
Total above-mentioned imports ...	1886	89.31	1.65	3.01	100
	1906	71.98	7.94	7.79	100
	1911	69.91	7.16	8.95	100
	1912	70.14	7.19	9.22	100
	1913	68.73	6.95	8.54	100
	1914-15	69.89	2.11	11.69	100
	1915-16	65.76	0.06	15.51	100
Total imports (less bullion and specie)	1916-17	61.96	0.06	17.30	100
	1886	73.71	2.06	6.16	100
	1906	62.34	7.55	10.92	100
	1911	60.28	6.82	11.93	100
	1912	59.66	6.71	12.35	100
	1913	60.66	6.34	12.18	100
	1914-15	58.95	2.04	15.08	100
	1915-16	51.47	1.69	20.01	100
	1916-17	52.34	0.06	20.38	100

The foregoing table shews that the share of the United Kingdom, as indicated by the records according to "Country of Shipment," in the trade of those classes of goods enumerated—representing about 80 per cent. of the total imports from that country—has declined from 89.31 per cent. of the whole in 1886 to 61.96 per cent. in 1916-17. The value of these imports from the United Kingdom has increased from £20,489,153 in 1886 to

only £31,932,680 in 1916-17, or by 55.85 per cent., while the total value of similar imports has increased from £22,937,818 to £51,541,094, or by 124.72 per cent. Had the same proportion of the total trade in these goods been shipped from the United Kingdom during 1916-17 as in 1886, it would have represented £46,031,351 instead of £31,932,680.

The following table gives an analysis of the imports during the quinquennium 1908-12, and the years 1913 to 1916-17 according to the countries of origin of the goods, and has been extended to include the products of Japan.

**IMPORTS INTO THE COMMONWEALTH OF PRODUCTS OR MANUFACTURES OF THE UNITED KINGDOM, FRANCE, GERMANY, JAPAN, AND THE UNITED STATES OF AMERICA, DURING THE YEARS 1908-12 to 1916-17.**

Nature of Imports.	Year.	United Kingdom.	France.	Germany.	Japan.	U.S. of America.	All Countries
		£	£	£	£	£	£
Foodstuffs of animal origin	1908-12	269,073	4,269	8,253	5,747	242,640	862,778
	1913	301,025	3,093	12,071	6,988	289,229	947,697
	1914-15	297,767	3,940	1,333	8,330	288,639	1,265,068
	1915-16	239,196	2,925	315	17,214	668,726	1,797,407
	1916-17	208,010	2,024	189	16,262	344,306	1,156,816
Alcoholic liquors, etc. ...	1908-12	1,095,700	310,485	104,655	931	18,573	1,731,020
	1913	1,988,717	361,734	171,055	1,755	22,313	2,085,896
	1914-15	1,351,151	271,758	35,852	1,736	45,460	1,780,927
	1915-16	1,113,030	166,394	896	2,599	38,479	1,488,987
	1916-17	1,528,027	205,261	816	2,074	47,818	1,985,895
Apparel (including boots), textiles, etc. ...	1908-12	10,579,504	820,626	1,505,804	396,687	454,184	16,677,058
	1913	12,057,643	960,479	1,702,145	475,954	624,682	19,705,768
	1914-15	11,149,935	887,141	594,096	733,101	709,110	17,577,422
	1915-16	13,784,546	851,066	28,289	1,132,222	1,266,449	21,272,545
	1916-17	15,382,173	796,051	11,289	1,612,222	1,703,481	24,134,756
Metals unmanufactured* partly manufactured, excluding gold and silver bullion ...	1908-12	859,907	2,550	185,496	239	56,685	1,309,458
	1913	1,202,514	3,674	302,466	...	108,000	1,699,846
	1914-15	898,390	906	51,110	108	156,951	1,309,908
	1915-16	800,089	19,364	771	4,551	438,639	1,425,645
	1916-17	708,697	2,725	2,285	22,819	553,185	1,479,649
Manufactures of metals ...	1908-12	8,029,953	53,397	1,447,043	3,324	2,500,239	12,763,023
	1913	10,874,005	44,713	1,735,452	7,601	3,078,610	16,623,135
	1914-15	8,777,732	30,806	547,165	11,464	3,210,904	13,455,001
	1915-16	8,424,701	31,801	28,141	75,292	3,731,020	13,013,699
	1916-17	6,286,665	21,263	17,420	171,935	3,872,922	11,084,538
Paper and stationery ...	1908-12	1,463,233	18,665	279,868	7,902	293,820	2,547,761
	1913	1,789,577	21,930	266,483	10,656	403,679	3,134,750
	1914-15	1,602,290	25,473	77,913	10,709	445,166	2,745,827
	1915-16	1,664,894	30,313	4,705	20,892	401,390	2,961,310
	1916-17	2,050,520	25,474	2,670	52,680	845,780	4,462,040
Jewellery, timepieces and fancy goods ...	1908-12	532,749	133,828	263,726	17,129	152,454	1,472,740
	1913	506,608	85,430	250,846	19,192	136,965	1,410,555
	1914-15	453,166	68,418	97,352	35,193	131,696	1,102,462
	1915-16	395,097	93,720	4,512	87,213	193,044	1,125,101
	1916-17	368,712	90,418	5,512	128,658	193,378	1,126,320
Earthenware, cements, glass, etc. ...	1908-12	490,818	31,081	271,406	16,220	55,039	1,067,217
	1913	655,778	40,504	453,007	21,493	64,482	1,580,615
	1914-15	740,002	36,899	104,936	44,659	126,287	1,208,186
	1915-16	674,576	12,205	7,048	230,222	220,424	1,355,299
	1916-17	501,243	8,024	3,410	263,056	248,796	1,112,987
Drugs, chemicals, fertilizers	1908-12	864,243	212,344	192,785	106,997	146,088	2,083,895
	1913	902,343	226,917	266,811	129,188	178,501	2,493,192
	1914-15	928,736	180,035	76,729	170,852	303,530	2,425,689
	1915-16	1,151,039	285,676	11,557	189,357	414,288	3,000,984
	1916-17	1,168,860	208,027	6,320	366,405	471,255	3,130,397
Leather and manufactures thereof, including india-rubber (excluding boots)	1908-12	472,166	59,356	221,768	1,581	324,991	1,338,033
	1913	515,169	68,746	347,550	692	435,071	1,749,046
	1914-15	359,178	40,515	76,907	844	443,314	1,234,057
	1915-16	496,747	52,272	2,492	5,040	782,272	1,892,940
	1916-17	426,546	20,228	290	16,243	978,588	1,867,696
Total above-mentioned imports ...	1908-12	24,657,246	1,646,501	4,480,604	556,757	4,244,713	41,855,993
	1913	30,103,379	1,817,220	5,512,865	673,519	5,341,532	51,604,500
	1914-15	26,458,347	1,544,891	1,663,333	1,016,986	5,871,257	44,104,547
	1915-16	28,743,915	1,545,756	88,726	1,764,569	8,154,731	49,393,917
	1916-17	28,629,453	1,379,496	50,201	2,652,354	9,259,609	51,541,094
Total imports (less bullion and specie) ...	1908-12	30,371,178	2,015,324	5,547,984	760,616	7,987,532	59,777,620
	1913	40,948,803	2,222,631	7,029,325	950,300	10,907,512	78,196,109
	1914-15	32,063,380	1,754,432	2,006,131	1,436,310	19,870,742	63,563,781
	1915-16	34,914,908	1,792,525	113,232	2,909,696	15,863,766	76,740,899
	1916-17	36,236,491	1,492,552	70,396	3,373,682	15,873,483	75,956,405

\* Mainly pig iron and bar and rod iron.

NOTE.—Figures for the years 1905-10 will be found in previous issues.

**COMMONWEALTH PERCENTAGE ON TOTAL IMPORTS OF IMPORTS OF PRODUCTS OR  
MANUFACTURES OF THE UNITED KINGDOM, FRANCE, GERMANY, JAPAN, AND  
THE UNITED STATES OF AMERICA DURING THE YEARS 1908-12 to 1916-17.**

Nature of Imports.	Year.	United Kingdom.	France.	Germany.	Japan.	U.S.A.	All Countries
Foodstuffs of animal origin	1908-12	31.19	0.49	0.96	0.67	28.12	100
	1913	31.77	0.33	12.74	0.74	30.52	100
	1914-15	23.54	0.23	0.10	0.66	23.61	100
	1915-16	13.31	0.16	0.02	0.96	37.20	100
	1916-17	17.98	0.17	0.03	1.40	29.77	100
Alcoholic liquors, etc.	1908-12	63.18	17.90	6.03	0.05	1.07	100
	1913	61.96	17.26	8.16	0.08	1.06	100
	1914-15	70.25	15.26	2.01	0.10	2.55	100
	1915-16	74.75	11.18	0.06	0.17	2.58	100
	1916-17	76.95	10.34	0.04	0.10	2.40	100
Apparel (including boots), textiles, etc.	1908-12	63.45	4.92	9.03	2.38	2.72	100
	1913	61.18	4.87	8.64	2.42	3.17	100
	1914-15	63.43	5.05	3.38	4.17	4.03	100
	1915-16	64.84	4.00	0.13	5.32	5.95	100
	1916-17	63.73	3.30	0.05	6.68	7.06	100
Metals unmanufactured or partly manufactured, ex- cluding gold and silver bullion	1908-12	65.67	0.19	14.16	0.02	4.33	100
	1913	63.29	0.19	15.92	—	5.69	100
	1914-15	68.58	0.07	3.90	0.01	11.98	100
	1915-16	56.13	1.36	0.05	0.32	30.77	100
	1916-17	47.90	0.18	0.15	1.54	37.39	100
Manufactures of metals	1908-12	62.91	0.42	11.34	0.03	19.59	100
	1913	65.41	0.27	10.44	0.05	18.52	100
	1914-15	65.24	0.23	4.07	0.09	23.86	100
	1915-16	64.60	0.24	0.21	0.58	28.60	100
	1916-17	56.71	0.19	0.16	1.55	34.94	100
Paper and stationery	1908-12	57.43	0.73	10.98	0.31	11.53	100
	1913	57.41	0.70	8.50	0.34	12.68	100
	1914-15	58.36	0.93	2.84	0.39	16.21	100
	1915-16	56.62	1.03	0.22	0.80	14.20	100
	1916-17	45.95	0.57	0.06	1.18	18.95	100
Jewellery, timepieces, and fancy goods	1908-12	36.18	9.09	17.90	1.16	10.35	100
	1913	35.92	6.06	17.77	1.36	9.71	100
	1914-15	41.11	6.21	8.83	3.19	11.96	100
	1915-16	35.14	8.34	0.37	7.76	17.18	100
	1916-17	32.74	8.03	0.49	11.41	17.17	100
Earthenware, cements, glass, etc.	1908-12	46.99	9.21	25.43	1.52	5.16	100
	1913	41.49	2.56	28.98	1.36	4.08	100
	1914-15	61.26	3.05	8.69	3.70	10.45	100
	1915-16	49.77	0.90	0.52	16.99	16.27	100
	1916-17	45.05	0.72	0.31	23.64	22.36	100
Drugs, chemicals, and fertilizers	1908-12	41.48	10.19	9.25	5.13	7.01	100
	1913	36.19	9.10	10.70	5.18	7.16	100
	1914-15	38.29	7.42	3.16	7.04	18.28	100
	1915-16	38.36	9.52	0.39	6.32	13.83	100
	1916-17	37.33	6.64	0.20	11.71	15.05	100
Leather and manufactures thereof and substitutes therefor, including india- rubber (excluding boots)	1908-12	35.29	4.43	16.57	0.12	24.29	100
	1913	29.45	3.93	19.87	0.04	24.88	100
	1914-15	29.10	3.28	6.23	0.07	35.92	100
	1915-16	26.36	2.76	0.13	0.26	41.34	100
	1916-17	22.84	1.08	0.02	0.87	52.40	100
Total above-mentioned articles	1908-12	58.90	3.93	10.71	1.33	10.14	100
	1913	58.30	3.52	10.67	1.30	10.34	100
	1914-15	59.99	3.50	3.77	2.31	13.32	100
	1915-16	58.27	3.13	0.18	3.58	16.53	100
	1916-17	55.54	2.68	0.10	5.15	17.96	100
Total imports (less bullion and specie)	1908-12	50.81	3.37	9.28	1.27	13.36	100
	1913	52.37	2.84	8.99	1.21	13.95	100
	1914-15	50.45	2.76	3.16	2.26	17.10	100
	1915-16	45.52	2.36	0.15	3.79	20.69	100
	1916-17	47.71	1.96	00.9	4.44	20.90	100

In previous issues this table has included Belgian imports. As it will be some time before Belgian trade will regain its pre-war dimensions, figures relating to the imports from Japan have been substituted.

It is gratifying to find that, notwithstanding the war, the United Kingdom has been able to so well maintain her share of the import trade of the Commonwealth. It will be noticed that, of the total of the groups shewn in the foregoing tables, the United Kingdom supplied 55.54 per cent. during 1916-17, as against 58.30 per cent. during 1913.

Apart from the collapse of the trade with Belgium and Germany in consequence of the war, the most striking feature of the figures given above, perhaps, is the increased proportion of the trade which has fallen to the United States. In the latest pre-war year (1913), the share of the United States in the "competitive" groups was £5,341,532, or 10.34 per cent., whereas in 1916-17 it was £9,259,509, or 17.96 per cent. The following are some of the principal lines in which United States' sales to Australia during 1916-17 were increased over those of 1913; and the amount of such increases:—Fish, £62,345; cocoa and chocolate, and confectionery, £27,070; potable spirits, £21,643; tobacco, £68,458; apparel and textiles, £1,075,432; mixed metals—aluminium, bronze, etc., £44,346; iron and steel unmanufactured or partly manufactured, £395,180; manufactured metals and machinery, £794,312; glass and glassware, £197,099; indiarubber and manufactures thereof, £291,673; leather and manufactures of, £254,711; paper and stationery, £442,101; fancy goods, £24,949; jewellery, £40,484; drugs and chemicals, £292,754; ammunition and explosives, £57,356; brushware, £16,064; electrical materials, £42,921; pianos and parts thereof, £150,564; motor vehicles and parts thereof, £652,365; bicycles, tricycles, and parts, £33,974; paints and varnishes, £53,818.

The more prominent position taken by Japan in the supply of these competitive goods is also a noticeable development of the past three years. Although the value of the imports of competitive goods from Japan is much less than from America, the rate of increase has been far greater—from £673,519 in 1913 to £2,652,354 in 1916-17, equal to 294 per cent. The classes of goods chiefly responsible for this increase were—Apparel and textiles, £1,136,268; metal manufactures and machinery, £187,153; china and porcelain ware, £80,965; earthenware, £30,981; glass and glassware, £128,148; paper, £23,778; stationery, £182,461; fancy goods, £100,291; optical, surgical, and scientific instruments, £11,878; sulphur, £219,498; bags, baskets, trunks, etc, £38,542; brushware, £36,795; matches, £20,873.

It may, perhaps, be necessary to explain the magnitude of imports of German goods during the year 1914-15, of which nearly eleven months were under war conditions. In the first place, a number of German ships *en route* to Australia, were, on the outbreak of war, interned in neutral ports and in South Africa. Subsequently the cargoes of these vessels were released and forwarded to Australia. British ships on the water on the 4th August, 1914, also, subsequently delivered their cargoes, which included German goods. Further, the earlier proclamations relating to trading with the enemy did not prohibit the importation of goods of enemy origin, provided they had not been purchased from an enemy country by a resident in Australia since the outbreak of war. Proclamation of the 12th September, 1914, provided that "where an enemy has a branch locally situated in British, allied or neutral territory, not being neutral territory in Europe, transactions by or with such branch shall not be treated as transactions by or with an enemy." It was not until the 11th December, 1915, that the importation, except with the consent in writing of the Minister of State for Trade and Customs, was prohibited of goods manufactured or produced in or bought directly or indirectly from an enemy country. Some goods of German origin, and also some German specie have been sent down from the captured German colonies in the Pacific.

**2. Preferential Tariff.**—The Tariff Act of 1908 provided preferential tariff rates in favour of goods produced or manufactured in the United Kingdom. Subsequent amendments of the tariff have extended the list of articles to which the preferential rates apply. In the schedule submitted to Parliament on the 3rd December, 1914, the extension of the operation of preferential rates has been very material, and has been accompanied in many instances by an increase of the margin in favour of the United Kingdom. On the introduction of the preferential treatment of British goods, it was



required that British material or labour should represent not less than one-fourth the value of such goods. From the 1st September, 1911, it has been required, in regard to goods only partially manufactured in the United Kingdom, that the final process or processes of manufacture shall have been performed in the United Kingdom, and that the expenditure in material of British production and/or British labour shall have been not less than one-fourth of the factory or works' cost of the goods in the finished state.

Recent editions of this Year Book have contained exhaustive analyses of the imports into the Commonwealth, for the purpose of measuring the effect of the preferential treatment of British goods. The method adopted was to contrast the relative proportion of the trade supplied by the United Kingdom in respect to goods subject to preferential tariff rates with the proportion of goods of the same class supplied in unrestricted competition under the general tariff. The most satisfactory data for the purpose was furnished by two classes of goods, viz., "Apparel and Textiles" and "Machinery and Manufactures of Metals." Under the existing tariff, preferential treatment has been so extended as to cover practically all goods of these classes, and consequently the basis of comparison no longer exists. Prior to the existing tariff, just about one-half of all imports and about 60 per cent. of imports from the United Kingdom were affected by the preferential tariff, whereas, under the tariff now in operation, nearly 80 per cent. of all imports and about 90 per cent. of imports of United Kingdom origin during 1915-7 were affected by the preferential tariff.

**3. Preferential Tariffs of the British Empire.**—The second report of a Special Committee of the London Chamber of Commerce on Trade During and After the War gives the following outline of the systems of preferential tariffs within the British Empire and the tariff arrangements between British Dominions or Colonies and Foreign Countries, together with a list of countries with whom Great Britain had concluded commercial treaties for "Most-Favoured-Nation" treatment.

#### PREFERENCE TARIFFS OF THE BRITISH DOMINIONS AND COLONIES IN FAVOUR OF IMPORTS FROM THE UNITED KINGDOM.

1. *Commonwealth of Australia.*—The Tariff Act No. 7 of 1908, as amended by Acts No. 39 of 1910, and 19 of 1911, and by resolution of the Commonwealth Parliament on 3rd December, 1914, since confirmed by the Customs Tariff Validation Act of 1917, provides for preferential rates of duty on goods 5 to 10 per cent. *ad valorem* lower than the general rates of duty.
2. *Dominion of New Zealand.*—Preferential treatment is accorded produce and manufactures of the British Empire under the Tariff Act No. 35 of 1908 as amended in 1915 by the imposition of *additional* duties of 10 per cent. *ad valorem* on certain goods which are *not* the produce or manufacture of some part of the British Dominions.
3. *Union of South Africa.*—Preferential treatment is accorded under the Tariff Act No. 26 of 1914, as amended by Act 22 of 1915, by means of a rebate of import duty on certain British goods to the extent of 3 per cent. *ad valorem*, and in some instances rebates equivalent to one-fifth of the duty.
4. *Rhodesia.*—Provision is made in the Customs Tariffs of Southern and Northern Rhodesia for the preferential treatment of British goods, by according a rebate of duty upon certain articles the produce or manufacture of the United Kingdom.

5. *Dominion of Canada*.—The Customs Act No. 11 of 1907 contains a British Preferential Tariff providing for special rates of duty for British goods, 5, 7½, and 10 per cent. *ad valorem* lower than the general rates of duty.
6. *St. Lucia, St. Vincent, Barbadoes, Grenada, Leeward Isles, Trinidad and Tobago, British Guiana*.—Under the Canadian-West Indian Reciprocity Agreement of 1912, certain goods, the growth, produce or manufacture of the United Kingdom, the Dominion of Canada and Newfoundland, are accorded preferential rates of duty when imported into the countries indicated, equivalent to a rebate of one-fifth of the general rates of duty.

#### TARIFF ARRANGEMENTS BETWEEN BRITISH DOMINIONS OR COLONIES AND FOREIGN COUNTRIES.

- Canada*.—1. The French Convention Act of 1908 provides that certain articles of French produce or manufacture on importation into Canada are entitled to enjoy the benefit of the Intermediate Tariff, or the benefits of a special tariff provided for in that convention, affecting a limited number of goods of special interest to French manufacturers and producers.
2. Certain commercial agreements have also been made with Belgium, the Netherlands and Italy, extending the advantages of the intermediate tariff to certain products of those countries.
  3. In addition, in view of treaties or conventions with His Majesty, certain products of the following countries are accorded the terms and conditions granted in respect of similar French products :—

Argentine Republic	Denmark	Norway	Spain	Switzerland
Colombia	Japan	Russia	Sweden	Venezuela

#### INTER-COLONIAL RECIPROCAL AGREEMENTS.

1. There exist reciprocal tariff agreements between Australia and South Africa, New Zealand and South Africa, Canada and New Zealand, and the West Indies and Canada.
2. In addition Canada grants the preferential tariff rates to India, Ceylon, Straits Settlements and other British Colonies and Southern Rhodesia; and New Zealand gives the preferential tariff to produce or manufactures of any part of the British Dominions.
3. Rhodesia grants preferential treatment to products of Canada, Australia and New Zealand.

#### MOST-FAVOURED-NATION TREATMENT.

In commercial treaties concluded between Great Britain and the *foreign (neutral) countries* named in the appended list there are "most-favoured-nation" clauses.

Argentine Republic	Denmark	Netherlands	Portugal*	Switzerland
Bolivia	Greece*	Nicaragua	Roumania*	United States*
China	Honduras	Norway	Salvador	Uruguay
Colombia	Liberia	Paraguay	Siam	Venezuela
Corea	Mexico	Persia	Spain	
Costa Rica	Morocco	Peru	Sweden	

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\* Since joined the Allies.

Similar clauses exist in commercial treaties with the undermentioned *allied countries* :—

Belgium France Italy Japan Montenegro Russia Serbia.

Most-favoured-nation treatment was also granted by the undermentioned *enemy countries* :—

Austria-Hungary Bulgaria Germany Turkey.

No commercial treaties have been concluded between Great Britain and Brazil, Chile, Cuba, or Guatemala.

### § 13. Customs Tariff, 1914.

The following tables shew as nearly as possible the results which would be obtained by applying to the imports of 1913 the rates of duty imposed under the tariffs of 1908-11 and 1914 respectively. The figures for 1913 have been selected in preference to those for 1914-15, because it was considered that the trade of the earlier year would represent normal conditions more approximately :—

#### TOTAL IMPORTS.—COMPARISONS OF TARIFFS FOR 1908-11 and 1914 APPLIED TO TOTAL IMPORTS DURING 1913.

Class*	Value of Imports, 1913.	Under Tariff of 1908-11.					Under Tariff of 1914.				
		Dutiable Imports.		Equivalent <i>ad val.</i> rate of duty.			Dutiable Imports.		Equivalent <i>ad val.</i> rate of duty.		
		Value.	Per cent. on Total Imports.	On Dutiable Goods.	On all Goods.		Value.	Per cent. on Total Imports.	On Dutiable Goods.	On all Goods.	
	£	£	%	%	%		£	%	%	%	
I.	947,697	848,910	89.58	17.23	15.43		848,910	89.58	20.30	18.19	
II.	3,315,825	3,127,278	94.32	35.79	33.76		3,126,811	94.30	36.68	34.59	
III.	1,833,235	471,777	25.73	20.74	5.34		471,777	25.73	22.02	5.67	
IV.	2,095,896	2,095,896	100.00	136.94	136.94		2,095,896	100.00	195.86	195.86	
V.	1,114,949	1,114,949	100.00	159.03	159.03		1,114,949	100.00	202.20	202.20	
VI.	145,215	17,842	12.29	0.59	0.07		17,842	12.29	0.59	0.07	
VII.	417,039	109,022	26.14	17.77	4.54		109,022	26.14	17.78	4.65	
VIII.	1,344,204	231,746	17.24	18.78	3.24		265,263	19.73	20.42	4.03	
IX.	19,705,768	11,498,498	58.35	22.44	13.09		12,210,357	61.95	24.79	15.36	
X.	1,969,628	1,326,051	67.32	16.44	11.07		1,426,339	72.41	17.74	12.85	
XI.	609,859	583,096	95.60	17.01	16.25		583,096	95.60	21.36	20.42	
XII.	218,332	182,219	83.46	23.11	19.28		200,869	91.99	24.38	22.43	
XIII.	377,220	...	...	...	...		...	...	...	...	
XIV.	1,575,734	18,002	1.14	15.28	0.17		84,717	5.38	7.59	0.41	
XV.	1,500,436	...	...	...	...		542,283	36.14	5.23	1.89	
XVI.	16,623,135	10,281,812	61.85	15.98	9.88		13,120,157	78.92	17.07	13.48	
XVII.	1,749,046	1,296,278	74.11	21.59	16.00		1,299,603	74.30	29.14	21.65	
XVIII.	3,573,753	3,300,002	92.34	16.91	15.64		3,487,323	97.59	22.33	21.79	
XIX.	1,580,615	1,468,735	92.91	27.58	25.63		1,542,984	97.61	32.98	32.19	
XX.	3,134,750	934,636	29.82	22.99	6.85		1,759,097	56.12	30.30	11.39	
XXI.	1,410,555	1,121,742	79.51	25.64	20.39		1,131,742	79.51	28.05	22.31	
XXII.	754,589	186,175	24.67	14.26	3.52		593,580	78.15	25.62	13.36	
XXIII.	2,493,192	565,569	22.69	20.08	4.56		1,196,301	47.98	12.85	6.17	
XXIV.	11,258,981	3,853,022	34.22	21.23	7.97		3,937,906	34.98	24.30	8.50	
Total	79,749,653	44,633,257	55.97	29.93	16.75		50,956,824	63.89	33.63	21.48	
Total†	78,196,109	44,633,257	57.07	29.93	17.08		50,956,824	65.16	33.63	21.91	

\* For description of the Classes of imports see page 585.

† Less bullion and specie.

### COMPARISON OF TARIFFS OF 1908-11 and 1914 APPLIED TO IMPORTS OF UNITED KINGDOM ORIGIN DURING 1913.

Class.*	Total Imports of U.K. Origin.	Under Tariff of 1908-11.							Under Tariff of 1914.							
		Dutiable Imports.			Per cent. of Dutiable Imports on Total Imports.	Equivalent a.v. Rate of Duty.	On Dutiable Goods.	On all Goods.	Dutiable Imports.			Per cent. of Dutiable Imports on Total Imports.	Equivalent a.v. Rate of Duty.	On Dutiable Goods.	On all Goods.	
		Under General Tariff.	Under Preference Tariff.	Total.					Under General Tariff.	Under Preference Tariff.	Total.					
	£	£	£	£	%	%	%	£	£	£	%	%	%	£	£	£
I.	301,025	235,623	9,925	295,548	98.18	23.08	22.66	101,110	194,438	295,548	98.18	23.08	22.66	...	...	...
II.	789,600	177,299	518,788	696,037	88.16	23.58	19.90	63,776	631,910	693,686	88.10	24.87	21.91	...	...	...
III.	173,775	36,878	136,897	173,775	100.00	18.92	18.92	34,322	139,453	173,775	100.00	19.55	19.55	...	...	...
IV.	1,298,717	1,298,717	...	1,298,717	100.00	145.44	145.44	887,846	410,871	1,298,717	100.00	206.43	206.43	...	...	...
V.	81,665	81,665	...	81,665	100.00	103.59	103.59	24,010	57,655	81,665	100.00	126.50	126.50	...	...	...
VI.	46,189	5,265	...	5,265	11.40	0.30	0.30	5,265	...	5,265	11.40	0.30	0.30	...	...	...
VII.	73,746	2,105	60,814	62,919	85.30	14.93	12.74	544	62,375	62,919	85.30	14.93	12.74	...	...	...
VIII.	372,170	25,237	42,058	67,295	18.08	23.36	4.04	5,367	61,939	67,306	18.09	23.71	4.11	...	...	...
IX.	12,057,643	182,107	6,534,701	6,716,808	55.71	23.38	13.03	26,759	6,690,049	6,716,808	55.71	27.06	15.09	...	...	...
X.	301,078	250,216	40,645	290,861	96.61	19.44	18.78	19,210	271,651	290,861	96.61	19.44	18.78	...	...	...
XI.	494,268	41,729	425,776	467,505	94.59	16.34	15.46	...	467,505	467,505	94.59	20.79	19.66	...	...	...
XII.	74,556	12,332	57,269	69,601	93.37	22.28	20.80	...	69,601	69,601	93.37	23.08	21.55	...	...	...
XIII.	377,020	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
XIV.	246,240	...	16,969	16,969	6.89	15.00	1.03	...	16,969	16,969	6.89	15.00	1.03	...	...	...
XV.	958,153	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
XVI.	10,855,417	617,754	6,630,316	7,248,070	66.78	14.21	9.49	1,994	7,350,667	7,352,661	67.74	16.70	11.81	...	...	...
XVII.	515,169	49,925	342,991	392,916	76.28	20.26	15.45	...	392,916	392,916	76.28	24.79	18.31	...	...	...
XVIII.	230,941	9,473	167,735	167,208	72.40	28.48	20.62	9,052	158,272	167,324	72.45	31.26	22.65	...	...	...
XIX.	655,778	53,434	564,713	618,147	94.27	23.35	22.02	47,794	570,353	618,147	94.27	26.94	25.40	...	...	...
XX.	1,789,577	98,312	310,161	408,473	22.82	23.37	5.33	...	494,894	494,894	27.65	24.76	6.85	...	...	...
XXI.	506,608	2,837	478,577	481,594	95.05	23.62	21.51	...	481,594	481,594	95.05	24.18	22.98	...	...	...
XXII.	333,179	...	60,861	60,861	18.27	19.63	3.59	...	103,340	103,340	31.02	25.95	8.05	...	...	...
XXIII.	902,343	218,489	92,346	310,835	34.45	18.07	6.23	...	310,835	310,835	34.45	18.30	3.60	...	...	...
XXIV.	7,892,845	103,448	1,019,219	1,122,667	14.22	23.43	3.32	15,453	1,107,214	1,122,667	14.22	25.37	3.61	...	...	...
Total ...	41,327,702	3,552,845	17,500,941	21,053,786	50.94	27.62	14.07	1,242,502	20,044,501	21,287,003	51.50	33.95	17.49	...	...	...
Total†...	40,948,803	3,552,845	17,500,941	21,053,786	51.41	27.62	14.20	1,242,502	20,044,501	21,287,003	51.98	33.95	17.65	...	...	...

\* For description of classes of imports see page 568.

† Less bullion and specie.

### COMPARISON OF TARIFFS OF 1908-11 and 1914 APPLIED TO IMPORTS OF THE PRODUCE OR MANUFACTURE OF COUNTRIES OTHER THAN THE UNITED KINGDOM.

Class.‡	Imports of Foreign Origin.†	Under 1908-11 Tariff.						Under 1914 Tariff.					
		Dutiable Imports.				Equivalent a.v. Rate.		Dutiable Imports.				Equivalent a.v. Rate.	
		Opposed by Preference Rates.‡	Common Rates.‡	Total.	Per cent. on Total Imports.	On Dutiable Imports.	On all Imports.	Opposed by Preference Rates.‡	Common Rates.‡	Total.	Per cent. on Total Imports.	On Dutiable Imports.	On all Imports.
I.	£ 646,672	£ 16,673	£ 536,689	£ 553,362	85.57	14.09	12.06	£ 464,674	£ 88,688	£ 553,362	85.57	18.82	16.10
II.	2,526,225	203,883	2,227,308	2,431,191	96.24	39.58	38.09	208,669	2,222,456	2,431,125	96.24	40.05	38.56
III.	1,659,460	166,957	1,310,445	298,002	17.96	21.81	3.92	178,553	119,449	298,002	17.96	23.46	21.31
IV.	797,179	...	797,179	797,179	100.00	123.10	123.10	136,985	660,184	797,179	100.00	178.65	178.65
V.	1,033,284	...	1,033,284	1,033,284	100.00	163.40	163.40	190,720	842,564	1,033,284	100.00	208.17	208.17
VI.	99,026	...	12,577	12,577	12.70	0.71	0.09	...	12,577	12,577	12.70	0.71	0.09
VII.	343,293	35,697	10,406	46,103	13.43	21.64	2.91	36,165	9,938	46,103	13.43	21.67	2.91
VIII.	972,034	26,203	138,248	164,451	16.92	17.31	2.93	54,030	143,927	197,957	20.37	19.64	4.00
IX.	7,648,125	4,702,225	79,465	4,781,690	62.52	21.08	13.18	5,461,055	32,494	5,493,549	71.82	21.99	15.60
X.	1,688,550	743,616	291,574	1,035,190	62.04	15.59	9.67	1,056,400	79,078	1,135,478	68.06	17.29	11.77
XI.	115,591	83,748	31,843	115,591	100.00	19.66	19.66	115,591	...	115,591	100.00	23.69	23.69
XII.	143,776	48,426	64,192	112,618	78.33	23.60	18.49	131,268	...	131,268	91.31	25.06	22.88
XIII.	200	...	...	...	...	...	...	...	...	...	...	...	...
XIV.	1,329,494	1,033	...	1,033	0.06	19.94	0.02	67,748	...	67,748	5.10	5.74	0.29
XV.	542,283	...	...	...	...	...	...	542,283	...	542,283	100.00	5.23	5.23
XVI.	5,767,718	2,408,495	625,247	3,033,742	52.59	20.21	10.63	5,659,720	107,776	5,767,496	99.98	17.53	17.53
XVII.	1,233,877	531,201	372,161	903,362	73.21	22.17	16.23	906,687	...	906,687	73.50	31.03	22.81
XVIII.	3,342,812	355,125	2,777,669	3,132,794	93.72	16.30	15.27	3,095,894	2,924,105	3,319,999	99.32	21.88	21.73
XIX.	924,837	827,998	22,590	850,588	91.96	30.65	28.13	911,495	13,342	924,837	100.00	36.96	36.96
XX.	1,345,173	449,394	76,769	526,163	39.12	22.69	8.88	1,264,203	...	1,264,203	93.98	18.55	17.44
XXI.	903,947	637,400	2,748	640,148	70.82	27.91	19.76	640,148	...	640,148	70.82	30.97	30.93
XXII.	421,410	125,314	...	125,314	29.74	11.65	3.47	290,240	...	290,240	68.88	25.51	17.57
XXIII.	1,590,849	118,751	135,983	254,734	16.01	22.54	3.61	885,466	...	885,466	55.67	10.94	6.09
XXIV.	3,366,136	2,552,378	177,977	2,730,355	81.12	20.32	17.11	2,807,524	7,715	2,815,239	83.64	23.87	19.97
Total	38,421,951	14,034,517	9,544,954	23,579,471	61.37	31.99	19.63	22,405,528	7,264,293	29,669,821	77.21	33.39	25.78
Total*	37,247,306	14,034,517	9,544,954	23,579,471	63.30	31.99	20.25	22,405,528	7,264,293	29,669,821	79.66	33.39	26.60

\* Less bullion and specie.

† Imports other than the produce of United Kingdom.

‡ Similar imports of United Kingdom origin are admitted free under preference tariff, or at a rate of duty lower than the general rate.

§ Dutiable at rates similar to those on goods of United Kingdom origin.

¶ For description of classes, see page 585.

In order to facilitate the interpretation of the foregoing tables, and also to deal further with the extension of preferential tariff treatment to the United Kingdom, the following synopsis of the changes made in rates of duty on the various classes of goods is appended. On pages 613 to 615 will be found a summary of the tariff changes as they affect the total imports and the imports of United Kingdom origin and the produce of "British Possessions" and "Foreign Countries" respectively.

## SYNOPSIS OF THE PRINCIPAL DIFFERENCES BETWEEN THE TARIFF OF 1914 AND THE TARIFF OF 1908-11 AS APPLIED TO THE CLASSES OF COMMODITIES IMPORTED INTO THE COMMONWEALTH DURING 1913.

### CLASS I.—FOODSTUFFS OF ANIMAL ORIGIN.

*General Comparisons.* The total value of imports in this class during 1913 was £947,697, of which the import of fish represented £718,036. The amount of *dutiable* goods would be the same under both tariffs, viz., £848,910, or 89.58 per cent. The average rate of duty on *dutiable* goods has been raised from an equivalent *ad valorem* rate of 17.23 per cent. to 20.30 per cent., thus increasing the average rate of duty on the total imports of the class from 15.43 per cent. to 18.19 per cent.

*Imports from the United Kingdom.* The value of foodstuffs of animal origin the produce of the United Kingdom imported during 1913 amounted to £301,025, of which 98.18 per cent. would be dutiable under both tariffs at an average *ad valorem* rate of 23.08 per cent.; including the small amount of free goods (sheet isinglass and sausage casings), the average rate of duty would be 22.66 per cent.

Under the earlier tariff, £9925 would have been favoured by preferential rates, whereas under the 1914 tariff, by the raising of the rates on similar imports from other countries, the United Kingdom would receive preferential treatment on goods to the value of £194,438. On these goods (£194,438) the United Kingdom would, under the existing tariff, pay duty to the amount of £46,088 (23.70 per cent.), while the same goods from other countries under the general tariff would pay £65,304 (33.58 per cent.), an advantage to the United Kingdom of £19,216, or 9.88 per cent. *ad valorem*. Under the 1908-11 tariff the margin of preference would have been £547 only, equal to 5.51 per cent. on the smaller value of imports affected.

### CLASS II.—FOODSTUFFS OF VEGETABLE ORIGIN AND SALT.

*General Comparisons.* During 1913 imports of this class amounted to £3,315,825, of which 94.32 per cent. would be dutiable under the 1908-11 tariff. By the removal of the duties on wheat and wheaten flour the proportion of dutiable goods under the tariff of 1914 would be reduced to 94.30 per cent. The average rate of duty on *dutiable* goods has been increased from the average equivalent *ad valorem* rate of 35.79 per cent. to 36.68 per cent., the average rate on all goods within the class rising from 33.76 per cent. to 34.59 per cent.

*Imports from United Kingdom.* The imports of vegetable foodstuffs of United Kingdom origin amounted to £789,600, of which 88.16 per cent. would have been dutiable under the 1908-11 tariff at an equivalent *ad valorem* rate of 22.58 per cent., while under the 1914 tariff the average rate would be 24.87 per cent., the value of dutiable goods being slightly reduced to 88.10 per cent. Including free goods (chiefly infants' and invalids' foods) the average rate on all goods of United Kingdom origin within the class would be under the respective tariffs 19.90 per cent. and 21.91 per cent.

Under the 1908-11 tariff, preferential treatment would apply to £526,613, or 66.69 per cent. of goods of United Kingdom origin, whereas under the 1914 tariff, £639,735, or 81.02 per cent. of the total imports from the United Kingdom, would be admitted under preferential rates (£7825 being free), the average preferential advantage being equal to 7.5 per cent. of the value of the goods, or £47,981 less than the same goods would have to pay if from other countries. Under the earlier tariff the margin of preference on goods of this class was £32,395, equal to 6.15 per cent. *ad valorem*.

## CLASS III.—BEVERAGES (NON-ALCOHOLIC) AND SUBSTANCES USED IN MAKING.

*General Comparisons.* The value of imports during 1913 in this class was £1,833,235, of which tea was responsible for £1,328,471. The tariff changes in the class were small. The amount of *dutiable* goods represents 25.73 per cent. under both tariffs. The equivalent average *ad valorem* rate on dutiable goods has been increased from 20.74 per cent. to 22.02 per cent., the rates on all goods within the class being raised from 5.34 per cent. to 5.67 per cent. Tea in bulk and cocoa beans are free.

*Imports from the United Kingdom.* This class contains a small proportion only of produce of the United Kingdom, the amount during 1913 being £173,775, all of which would be dutiable under both tariffs. Preference equal to 10 per cent. *ad valorem* has been extended to mineral waters, while the margin of  $\frac{3}{4}$ d. per lb. on cocoa and chocolate in powdered form has been increased to  $\frac{3}{4}$ d. per lb. The average rate of duty on produce of the United Kingdom has been raised from 18.92 per cent. to 19.55 per cent., although the goods favoured by preferential rates have been increased from £136,897 to £139,453, and the margin of preference from 1.98 per cent. to 3.25 per cent. *ad valorem*.

## CLASS IV.—SPIRITS AND ALCOHOLIC LIQUORS, INCLUDING INDUSTRIAL SPIRITS AND PHARMACEUTICAL PREPARATIONS DUTIABLE AS SPIRITS.

All imports under this class are dutiable. Prior to the 1914 tariff, goods of United Kingdom origin had no preferential tariff treatment. The present tariff has raised the general tariff rate on ale, beer and porter in bottle from 1s. 6d. to 2s. 6d. per gal. with a preferential rate of 2s. per gal.; the duty on ale, etc. in bulk has been raised from 1s. per gal. to 2s. per gal. under the general tariff, and 1s. 6d. per gal. under the preferential tariff; and the rates on cider and perry have been raised from 1s. 6d. per gal. in bottle and 1s. in bulk to 2s. 6d. per gal. under the general tariff, and 2s. per gal. under the preferential tariff, whether in bottle or bulk. The imports of beer and cider from the United Kingdom during 1913 were valued at £410,871. Under the 1914 tariff, this would pay duty to the amount of £257,936, whereas the same goods if from other countries would have to pay £323,984, representing a margin of preference equal to 16.08 per cent. *ad valorem*. It is true that while preference has been extended to British beers, the rates of duty now charged on them are 16 per cent. higher than formerly, but at the same time the excise duties on locally manufactured beers and spirits have also been increased. Duties on imported potable spirits have been increased by 3s. per gal. (14s. to 20s.), on sparkling wine by 8s. per gal. (12s. to 20s.), and on other wines by 4s. per gal. The result of these changes has been to raise the average equivalent *ad valorem* rate over the whole class from 136.94 per cent. to 195.86 per cent.

## CLASS V.—TOBACCO, AND PREPARATIONS THEREOF.

*General Comparisons.* All goods in this class are dutiable. Under the 1914 tariff the duties have been raised on all forms of tobacco except snuff, so that the equivalent *ad valorem* rate on the imports of all tobacco has been raised from 159.03 per cent. to 202.20 per cent. Under the 1914 tariff the preferences of 1s. 3d. per lb. on cut tobacco and 1s. on other manufactured tobacco, formerly given to produce of the South African Union, have been reduced to 9d. per lb.

*Imports from United Kingdom.* Under the tariff of 1914 cigars manufactured in the United Kingdom have a preference of 1s. per lb. and cigarettes of 6d. per lb. This represents a remission of duty as compared with the general tariff rates of £4302, or 7.46 per cent. on the value of imports affected. Formerly no preference was given to the United Kingdom in this class.

## CLASS VI.—ANIMALS, LIVING.

No alterations have been made in regard to this class. Most of the animals imported are for the improvement of stock, and are admitted free of duty. Of the total imports during 1913, 12.29 per cent. would now be dutiable at an equivalent average *ad valorem* rate of 0.59 per cent.

### CLASS VII.—ANIMAL SUBSTANCES, MAINLY UNMANUFACTURED, WHICH ARE NOT FOODSTUFFS.

*General Comparisons.* The only changes in this class have been made by the extension of preference to curled hair for upholstering, and to printers' roller composition. On the former, the duty under the general tariff has been raised 5 per cent. *ad valorem*, and on the latter, by 10 per cent. *ad valorem*, while the rates on produce of the United Kingdom remain as formerly. Of the total imports of this class during 1913, 26.14 per cent. would be dutiable at an average equivalent *ad valorem* rate of 17.78 per cent., while the average rate on all goods (dutiable and free) within the class would be 4.65 per cent.

*Imports from the United Kingdom.* The imports of the United Kingdom produce amounted to £73,746, of which 85.30 per cent. would be dutiable.

Under the tariff of 1908-11, £60,814 would be favoured by preferential rates, the margin of preference being 5.51 per cent., equal to £3350, whereas by the 1914 tariff, £62,375 would be favoured by a remission of £3484, or 5.58 per cent. of the value of the goods.

### CLASS VIII.—VEGETABLE SUBSTANCES AND NON-MANUFACTURED FIBRES.

*General Comparisons.* In this class the application of duties has been extended to 19.73 per cent. (£265,263) of imports, as compared with 17.24 per cent. dutiable under the former tariff. The equivalent average *ad valorem* rate on dutiable goods has been raised from 18.78 per cent. to 20.42 per cent. Including free goods, the average rate of duty would now be 4.03 per cent. instead of 3.24 per cent.

*Imports from the United Kingdom.* The imports of United Kingdom origin in this class amounted to £372,170, the principal items being yarns, cotton waste, starch, and seeds.

Under the tariff of 1908-11, goods to the value of £270,439 were favoured by a preference equal to 5.34 per cent. *ad valorem*; under the 1914 tariff, preferential treatment has been extended to embrace £290,868, while the margin of preference has been increased to 5.52 per cent.

### CLASS IX.—APPAREL AND TEXTILES, AND MANUFACTURED FIBRES.

*General Comparisons.* The value of the total imports of this class during 1913 was £19,705,768, representing 25.20 per cent. of the total imports of merchandise. Under the 1908-11 tariff, 58.35 per cent. of these goods would be dutiable at an average equivalent *ad valorem* rate of 22.44 per cent. Under the 1914 tariff, 61.95 per cent. would be dutiable at an average rate of 24.79 per cent. Including free goods, the average rate of duty on all goods within the class has been increased from 13.09 per cent. to 15.36 per cent.

*Imports from the United Kingdom.* The imports of this class from the United Kingdom during 1913 were valued at £12,057,643, equal to 29.44 per cent. of all imports of United Kingdom merchandise. Of these goods 55.71 per cent. would be dutiable under both tariffs, though the average rate would be increased from 23.38 per cent. under the 1908-11 tariff to 27.08 per cent. under the 1914 tariff, the corresponding rates on all goods within the class (dutiable and free) rising from 13.03 per cent. to 15.09 per cent.

Under the 1908-11 tariff, preferential rates applied to £10,594,158, with a margin of preference equal to 5.12 per cent. *ad valorem*, while under the 1914 tariff, preferential treatment has been extended to embrace £11,985,926 (98.99 per cent. of all goods within the class), on which an average preference equal to 5.36 per cent. of the goods (£639,765) is given.

### CLASS X.—OILS, FATS, AND WAXES.

*General Comparisons.* In this class the imposition of new duties brings 72.41 per cent. (£1,426,339) of the imports into the dutiable class, as compared with 67.37 per cent. under the 1908-11 tariff. The average rate of duty on *dutiable* goods has been raised

from 16.44 per cent. to 17.74 per cent., so raising the average rate on all goods within the class from 11.07 per cent. to 12.85 per cent.

*Imports from the United Kingdom.* No changes have been made in the duties on goods of United Kingdom origin in this class. The increased rates mentioned in the previous paragraph are due to higher rates on foreign goods. By reason of these higher duties, oils, etc., of United Kingdom manufacture, to the value of £281,864 (93.60 per cent.), have the advantage of preferential duties, as compared with £40,645 (13.50 per cent.) under the former tariff. The margin of preference has also been slightly increased from 5.23 per cent. to 5.37 per cent. on the value of the goods.

#### CLASS XI.—PAINTS AND VARNISHES.

*General Comparisons.* In this class the value of *dutiable* goods would be the same under both tariffs, but the average rate of duty on all *dutiable* goods within the class would be raised from 17.01 per cent. to 21.36 per cent., and the rates on all goods within the class would be raised from 16.25 per cent. to 20.42 per cent.

*Imports from the United Kingdom.* Of the imports of paints and varnish manufactured in the United Kingdom, 94.59 per cent. would be dutiable under both tariffs. The average *ad valorem* rate of duty on dutiable goods has, however, been raised from 16.34 per cent. to 20.79 per cent., so raising the rates on all goods within the class from 15.46 per cent. to 19.66 per cent.

Under the tariff of 1908-11, £452,539, or 91.56 per cent. of all paints and varnishes of United Kingdom origin, was favoured by preferential tariff rates, while under the 1914 tariff all goods within the class have the advantage of preferential rates, but, through this extension, the average margin has been slightly reduced from 5.06 per cent. to 4.93 per cent. of the value of the goods.

#### CLASS XII.—STONES AND MINERALS USED INDUSTRIALLY.

*General Comparisons.* Under the 1908-11 tariff, 83.46 per cent. of the imports under this class would be dutiable at an average equivalent *ad valorem* rate of 23.11 per cent. Under the present tariff, dutiable goods comprise 91.99 per cent. of the total, and the average rate has been raised to 24.38 per cent. On all goods within the class (*dutiable* and *free*) the average rate has been increased from 19.28 to 22.43 per cent.

*Imports from the United Kingdom.* Of the imports from the United Kingdom, 93.37 per cent. would be dutiable under both tariffs. Under the 1914 tariff the average rate is slightly higher than formerly, the rates being respectively:—On *dutiable* goods 22.28 per cent., increased to 23.08 per cent.; and on all goods 20.80 per cent., raised to 21.55 per cent.

Under the 1908-11 tariff, preferential rates affected 76.80 per cent. of the stones, etc., of United Kingdom origin, the margin of preference being 5 per cent.; under the present tariff, 96.84 per cent. is favoured by an average margin of 8.06 per cent.

#### CLASS XIII.—SPECIE.

All specie is exempt from duty.

#### CLASS XIV.—METALS (UNMANUFACTURED) AND ORES.

This class includes ore of all kinds and gold and silver bullion. The proportion of *dutiable* goods is small, representing £18,002, or 1.14 per cent. of the total. The average rate on these *dutiable* goods is now 17.59 per cent., as against 15.28 per cent. formerly. Under the 1914 tariff, duties have been imposed on imports of pig iron and steel; mixed metals—aluminium, bronze, britannia metal, etc.; and on platinum bars when not the produce of the United Kingdom. Consequently, under the present tariff, imports of this class to the value of £236,985 would have the advantage of preference equal to 6.21 per cent. *ad valorem*, whereas, under the 1908-11 tariff, the advantage was restricted to 5 per cent. on £16,969.

#### CLASS XV.—METALS PARTLY MANUFACTURED.

All metals in this class are exempt from duty.



## CLASS. XVI.—METALS MANUFACTURED, INCLUDING MACHINERY.

*General Comparisons.* The imports under this class during 1913 amounted to £16,623,135, representing 21.25 per cent. of the total imports of merchandise. Under the 1908-11 tariff, 61.85 per cent. was dutiable at an equivalent average *ad valorem* rate of 15.98 per cent. Under the 1914 tariff, 78.92 per cent. would be dutiable at an average rate of 17.07 per cent., thus raising the rate on all goods (dutiable and free) within the class from 9.88 per cent. to 13.48 per cent. The greater proportion of dutiable goods under the 1914 tariff is almost entirely due to the imposition of duties on goods not of United Kingdom origin.

*Imports from the United Kingdom.* The imports from the United Kingdom of metal manufactures and machinery during 1913 amounted to £10,855,417, or 26.51 per cent. of the total imports of merchandise of United Kingdom origin. Under the 1914 tariff a small amount of imports which were formerly free became dutiable, thus increasing the proportion of dutiable goods from 66.78 per cent. to 67.74 per cent. The average rate of duty on *dutiable* goods has been raised from 14.21 per cent. to 16.70 per cent., and the rates on all goods (dutiable and free) from 9.49 per cent. to 11.31 per cent. *ad valorem*.

Under the 1908-11 tariff, imports of metals and machinery of United Kingdom manufacture to the value of £7,645,503 were favoured by preferential tariff treatment equal to 4.50 per cent. *ad valorem*, while under the 1914 tariff, preferential rates apply to £10,818,350, or 99.66 per cent., the margin of preference being raised to 6.14 per cent. *ad valorem*. This represents a remission of £664,000 of duty as compared with what the same goods would have to pay if manufactured outside the United Kingdom.

## CLASS XVII.—LEATHER AND MANUFACTURES OF LEATHER AND SUBSTITUTES THEREFOR, ALSO INDIARUBBER AND INDIARUBBER MANUFACTURES.

*General Comparisons.* The total imports under this class amounted to £1,749,046, of which 74.30 per cent. (£1,299,603) would be dutiable under the 1914 tariff at an average rate equal to 29.14 per cent., as against 74.11 per cent. (£1,296,278) bearing an average rate of 21.59 per cent. under the 1908-11 tariff. The average rate of all goods in the class has been raised from 16 per cent. to 21.65 per cent.

*Imports from the United Kingdom.* The proportion of dutiable goods of United Kingdom origin would be the same under both tariffs (76.28 per cent.). The average rate on *dutiable* goods in this class has been raised from 20.26 per cent. to 24.79 per cent., and on all goods (dutiable and free) from 15.45 per cent. to 18.91 per cent.

Under the 1908-11 tariff, £342,991 was favoured by a preferential margin of duty equal to 5 per cent. Under the 1914 tariff, preferential treatment has been extended to £458,390 with a margin of 4.98 per cent. of the value of the goods. This slight decrease in the margin of preference is due to a new preference on patent and enamelled leather of  $\frac{3}{4}$ d. per lb., which is less than the 5 per cent. otherwise allowed throughout the class.

## CLASS XVIII.—WOOD AND WICKER, RAW AND MANUFACTURED.

*General Comparisons.* The total imports under this class amounted to £3,573,753. Under the 1908-11 tariff, 92.34 per cent. (£3,300,002) of the imports of this class was dutiable at an equivalent average *ad valorem* rate of 16.91 per cent. Under the 1914 tariff, 97.59 per cent. (£3,487,323) would become dutiable at an average rate of 22.33 per cent., thus raising the rate of duty on all goods (dutiable and free) within the class from 15.62 per cent. to 21.79 per cent. of the value of the imports.

*Imports from the United Kingdom:* The imports of this class from the United Kingdom are relatively small (£230,941), representing, in 1913, slightly more than 6 per cent. of all imports of wood, etc., and comprise chiefly furniture, picture frames, and miscellaneous manufactured articles of wood. Under the 1908-11 tariff, 72.40 per cent. of the imports of United Kingdom origin was dutiable at an average rate of 28.48 per cent., while under the 1914 tariff, 72.45 per cent. would become dutiable at an

average of 31.26 per cent. The average equivalent *ad valorem* rate on all imports of this class of United Kingdom origin was thus raised from 20.62 per cent. to 22.65 per cent.

Under the tariff of 1908-11, 68.34 per cent. of the imports from the United Kingdom was favoured by preferential treatment equal to 5.11 per cent. *ad valorem*, whereas, under the 1914 tariff, 95.93 per cent. would be favoured by a preferential margin of 5.02 per cent.

#### CLASS XIX.—EARTHENWARE, CEMENTS, CHINA, GLASS AND STONEWARE.

*General Comparisons.* The total imports under this class amounted to £1,580,615. Under the 1908-11 tariff, 92.91 per cent. was dutiable at an equivalent average *ad valorem* rate of 27.58 per cent. Under the 1914 tariff, 97.61 per cent. would be dutiable at an average of 32.95 per cent., the average rate on all goods within the class being raised from 25.63 per cent. to 32.16 per cent. The increased proportion of dutiable goods is due entirely to the imposition of duties of 5 per cent. on goods not of United Kingdom origin which were formerly free.

*Imports from the United Kingdom.* The dutiable imports of this class of United Kingdom origin would be the same under both tariffs (£618,147, or 94.27 per cent.), but the average rate of duty would be raised by the 1914 tariff from 23.35 per cent. to 26.94 per cent., so raising the rates on all goods within the class from 22.02 per cent. to 25.40 per cent.

Under the tariff of 1908-11, 86.11 per cent. of the imports from the United Kingdom was favoured by preferential treatment equal to 6.46 per cent. *ad valorem*, whereas, under the 1914 tariff, 92.66 per cent. would be favoured by a preferential margin of 8.98 per cent.

#### CLASS XX.—PAPER AND STATIONERY.

*General Comparisons.* The imports of paper and stationery during 1913 amounted to £3,134,750, of which £1,996,894 was paper, and £1,137,856 was stationery. Under the 1908-11 tariff, 29.82 per cent. was dutiable at an average equivalent *ad valorem* rate of 22.99 per cent. Under the 1914 tariff, 56.12 per cent. would be dutiable at an average rate of 20.30 per cent. Over all goods within the class (dutiable and free) the average rate would be raised, under the 1914 tariff, to 11.39 per cent., as against the former average rate of 6.85 per cent.

With regard to the imports of paper—apart from those of stationery—the proportion subject to duty has been raised from 28.26 per cent. to 65.96 per cent. The average rate of duty on dutiable paper has declined from 22.30 per cent. to 18.71 per cent., while the average rate on all imports of paper, dutiable and free, has increased from 6.30 per cent. to 12.34 per cent. The larger proportion of paper imports subject to duty, in conjunction with the lower average rate thereon, is due to the imposition of comparatively low rates on goods (formerly free) produced outside the United Kingdom. For instance, prior to the introduction of the 1914 tariff, printing paper was free, whereas now, when not made in the United Kingdom, it is subject to a duty of 10 per cent.

Of the imports of stationery—as distinct from paper, previously dealt with—the proportion subject to duty has been raised from 32.55 per cent. to 38.92 per cent., the average rate on these dutiable goods rising from 24.03 per cent. to 25.58 per cent., thus increasing the average rate on all imports of stationery from 7.82 per cent. to 9.93 per cent. Nearly 60 per cent. of the imports of stationery consist of printed books, which are entirely free from duty.

*Imports from the United Kingdom.* The imports of paper and stationery manufactured in the United Kingdom amounted to £1,789,577, of which £901,099 was paper, and £888,478 was stationery. Under the 1908-11 tariff, 22.82 per cent. was dutiable at an average rate of 23.37 per cent. Under the 1914 tariff, 27.65 per cent. would be dutiable at 24.76 per cent., thus increasing the average rate on all paper and stationery from 5.33 per cent. to 6.85 per cent. Under the 1908-11 tariff, preferential rates favoured £652,183 (36.45 per cent. of all imports), with a rebate of duty equal to 4.84 per cent. of

the value of the goods. Under the 1914 tariff, preferential treatment has been extended to embrace goods to the value of £1,192,111 (66.62 per cent.), the margin of preference at the same time being increased to 6.64 per cent. *ad valorem*.

Dealing with the imports of paper and of stationery separately, the tariff alterations affecting the trade of the United Kingdom would be as follows:—*Paper*. Of the imports of paper (£901,099), the proportion subject to duty under the 1908-11 tariff was 19.57 per cent., and under the 1914 tariff 24.60 per cent. The average *ad valorem* rate on these dutiable goods has been increased from 23.44 per cent. to 25.36 per cent., the rate on all paper (dutiable and free) rising from 4.59 per cent. to 6.24 per cent. *Stationery*. The imports of stationery of United Kingdom manufacture amounted to £888,478, of which 26.13 per cent. was dutiable under the 1908-11 tariff at an average rate of 23.33 per cent. Under the 1914 tariff, 30.74 per cent. would be dutiable at 25.13 per cent., so raising the average rate on all stationery (dutiable and free) from 6.09 per cent. to 7.73 per cent. *ad valorem*.

#### CLASS XXI.—JEWELLERY, TIMEPIECES, AND FANCY GOODS.

*General Comparisons*. The value of imports of this class during 1913 amounted to £1,410,555, of which £1,121,742, or 79.51 per cent., would be dutiable under both tariffs. Under the 1908-11 tariff, the average equivalent *ad valorem* rate on *dutiable* imports was 25.64 per cent., and under the 1914 tariff 28.05 per cent., the average rates on all imports of the class being raised from 20.39 per cent. to 22.31 per cent. *ad valorem*.

*Imports from the United Kingdom*. The imports of goods of this class produced in the United Kingdom amounted to £506,608, of which £481,594, or 95.05 per cent., would be dutiable under both tariffs, though the rate of *dutiable* goods has been raised from 22.62 per cent. to 24.18 per cent., and on all goods (dutiable and free) from 21.51 per cent. to 22.98 per cent.

Under the 1908-11 tariff, preferential treatment was given to 94.49 per cent. (£478,757) of imports of United Kingdom origin; the margin of preference being equal to 5.38 per cent. of the value of the goods. Under the 1914 tariff, 95.04 per cent. (£481,594) would be favoured by a margin of 9.12 per cent.

#### CLASS XXII.—OPTICAL, SURGICAL, AND SCIENTIFIC INSTRUMENTS.

*General Comparisons*. The imports of this class during 1913 amounted to £754,589. Under the 1908-11 tariff, 24.67 per cent. (£186,175) was dutiable at an average rate of 14.26 per cent., while under the 1914 tariff, 52.15 per cent. (£393,580) would be dutiable at an average rate of 25.62 per cent. The average rate on all goods within the class would thus be raised from 3.52 per cent. to 13.36 per cent.

*Imports from the United Kingdom*. The imports of goods of this class manufactured in the United Kingdom amounted to £333,179. Under the 1908-11 tariff, 18.27 per cent. (£60,861) was dutiable at an average rate equal to 19.63 per cent.; whereas, under the 1914 tariff, 31.02 per cent. (£103,340) would pay duty at the average rate of 25.95 per cent. The average rate on all goods, including free goods, has been raised from 3.59 per cent. to 8.05 per cent.

Under the 1908-11 tariff, 44.24 per cent. (£147,398) of the imports of United Kingdom manufacture was favoured by a preferential tariff margin equal to 5.09 per cent. *ad valorem*. Under the 1914 tariff, 59.15 per cent. (£197,061) would be favoured by a tariff margin increased to 6.55 per cent.

#### CLASS XXIII.—DRUGS, CHEMICALS, AND FERTILIZERS.

*General Comparisons*. The imports of this class during 1913 were valued at £2,493,192. Under the 1908-11 tariff, 22.69 per cent. (£565,569) was dutiable at an average rate of 20.08 per cent. Under the 1914 tariff, 47.98 per cent. (£1,196,301) would pay duty at an average rate of 12.85 per cent., the rate over all imports of the class being raised from 4.56 per cent. to 6.17 per cent. *ad valorem*. The smaller average rate of duty on dutiable imports is due to the imposition of 5 per cent. duties on goods manufactured outside the United Kingdom which were formerly free.

*Imports from the United Kingdom.* The imports of this class from the United Kingdom during 1913 amounted to £902,343, of which 34.45 per cent. would be dutiable under both tariffs, the average rate being slightly increased from 18.07 per cent. to 18.30 per cent., the average rate on all goods in the class rising from 6.23 per cent. to 6.30 per cent.

Under the 1908-11 tariff, 12.92 per cent. (£116,543) of the imports of drugs, etc., made in the United Kingdom was favoured by a tariff margin of 4.58 per cent. *ad valorem*, whereas, under the 1914 tariff, preferential rates have been extended to 94.94 per cent. of the class, and the margin of preference has been increased to 5.09 per cent.

#### CLASS XXIV.—MISCELLANEOUS.

*General Comparisons.*—The total value of imports under this class during 1913 amounted to £11,258,981, of which £2,495,000 was in respect of warships for the Commonwealth Government, and £1,662,300 was for mercantile ships. Under the 1908-11 tariff, £3,853,022 (34.22 per cent.) would be dutiable at an average rate of 21.23 per cent., and under the 1914 tariff, £3,937,906 (34.98 per cent.) would be dutiable at an average rate of 24.30 per cent. The rate of duty on all imports of the class would be raised from 7.27 per cent. to 8.50 per cent. *ad valorem*. If the value of imports for the Commonwealth Government be excluded from the figures, the proportion of dutiable goods in this class under the 1908-11 tariff would be 46.83 per cent., and the average rate of duty on all other goods of the class 9.95 per cent., and under the 1914 tariff, 47.91 per cent. would be dutiable at an average rate for all goods (dutiable and free) of 11.64 per cent.

*Imports from the United Kingdom.* The imports of manufactures of the United Kingdom of this class amounted to £7,892,845, of which £4,073,452, or 51.60 per cent., was in respect of ships. Dutiable goods would represent, under both tariffs, 14.22 per cent. (£1,122,667) of the total. Under the tariff of 1908-11, the average rate of duty on dutiable goods would be 23.43 per cent., and under the tariff of 1914 it would be 25.37 per cent. The average rate on all imports of the class (dutiable and free) of United Kingdom origin would be raised from 3.32 per cent. to 3.61 per cent. If the value of imports for the Commonwealth Government be eliminated, the proportion of dutiable goods would be 22.20 per cent. under both tariffs, the average rates on all goods being respectively 5.15 per cent. under the tariff of 1908-11 and 5.58 per cent. under the tariff of 1914.

Under the tariff of 1908-11 preferential tariff treatment was given to imports of this class from the United Kingdom to the value of £2,716,217, or 34.41 per cent. of such imports. Under the tariff of 1914, preference favoured £2,883,474, or 36.54 per cent., with an average tariff margin of 8.79 per cent., as against a former margin of 6.76 per cent.

#### TOTAL IMPORTS.

*General Comparisons.*—The total imports of merchandise (bullion and specie not included) into the Commonwealth during 1913 amounted to £78,196,109. Under the tariff of 1908-11, the dutiable goods would be £44,633,257, or 57.07 per cent. of the total imports of merchandise. Under the 1914 tariff, the dutiable goods would be increased to £50,956,824, or 65.16 per cent. of the total. Under the 1914 tariff, the average equivalent *ad valorem* rate of duty on dutiable goods would be 33.63 per cent., as compared with 29.93 per cent. under the tariff of 1908-11, the average rate on all imports (dutiable and free) being raised accordingly from 17.08 per cent. to 21.91 per cent. If the value of warships and other goods imported for the Commonwealth Government (£3,039,876) be excluded, the proportion of dutiable goods under the 1914 tariff would be 67.80 per cent., as compared with 59.38 per cent. under the former tariff, while the average rate on all other goods would now be 22.80 per cent., as against 17.77 per cent. under the 1908-11 tariff. The increased rates of duty represent on the basis of the 1913 imports an increase to revenue of £3,775,000.

**SUMMARISED COMPARISON OF THE TARIFFS OF 1908-11 and 1914, BASED UPON  
THEIR APPLICATION TO THE IMPORTS OF MERCHANDISE INTO THE  
COMMONWEALTH DURING 1913.**

	Tariff of 1908-11.	Tariff of 1914.
<b>Imports of free merchandise—</b>	£	£
Favoured by preferential tariff (United Kingdom) ...	7,485,367	12,405,214
Under tariff common to all countries ...	26,077,485	14,834,071
<b>Total imports of free merchandise ...</b>	<b>38,562,852</b>	<b>27,239,285</b>
<b>Percentage of free imports on total imports ...</b>	<b>42.93</b>	<b>34.83</b>
<b>Imports of dutiable merchandise—</b>		
Favoured by preferential tariff—		
From United Kingdom ...	17,500,941	20,044,501
" South Africa ...	38,569	38,569
Adversely affected by preferential tariffs—		
From British Possessions ...	491,972	1,106,899*
" Foreign countries ...	13,542,545	21,298,629
Under tariff common to all countries ...	13,059,230	8,468,226
<b>Total imports of dutiable merchandise ...</b>	<b>44,633,257</b>	<b>50,956,824</b>
<b>Percentage of dutiable imports on total imports ...</b>	<b>57.07</b>	<b>65.17</b>
<b>Total imports favoured by preferential tariffs ...</b>	<b>25,024,877</b>	<b>32,488,284</b>
" adversely affected by " " ...	14,034,517	22,405,528
" under tariff common to all countries ...	39,136,715	23,302,297
<b>Total imports of merchandise ...</b>	<b>78,196,109</b>	<b>78,196,109</b>
<b>Equivalent <i>ad valorem</i> rates of duty—</b>	Per cent.	Per cent.
On total imports of merchandise ...	17.08	21.91
On imports of merchandise, less drink and tobacco ...	11.62	14.37
On <i>dutiable</i> merchandise ...	29.93	33.63
On <i>dutiable</i> merchandise, less drink and tobacco ...	21.04	22.56

\* The surcharge on these imports as compared with similar imports from the United Kingdom would be at the average rate of 9.46 per cent.

*Imports from the United Kingdom.* The total imports of merchandise from the United Kingdom during 1913 amounted to £40,948,803. Under the tariff of 1908-11, the dutiable goods represented £21,053,786, or 51.41 per cent., the average equivalent *ad valorem* rate thereon being 27.62 per cent. Under the 1914 tariff, dutiable goods are increased slightly to £21,287,003 (51.98 per cent.), while the average rate on dutiable goods has been raised to 33.95 per cent. The average equivalent *ad valorem* rate on all imports from the United Kingdom would, under the 1914 tariff, be 17.65 per cent., compared with 14.20 per cent. under the former tariff. Omitting the value of imports for the Commonwealth Government (£2,786,430), the proportion of dutiable goods would now be 55.78 per cent., as against 55.16 per cent. formerly, and the average *ad valorem* rate on all goods (dutiable and free) would now be 18.14 per cent. instead of 15.24 per cent. The increased rates on imports of United Kingdom origin represent an additional import of £1,412,451 on the same trade. Of this increase £791,593, or 56.05 per cent., is due to increased duties on alcoholic liquors.

Under the tariff of 1908-11, imports of United Kingdom origin to the value of £24,986,308, representing 61.01 per cent. of the total imports of United Kingdom produce, were favoured by preferential tariff rates equal to 5.14 per cent. of the value of the goods. Under the 1914 tariff, preferential treatment is extended to £32,449,715, or 79.23 per

cent. of United Kingdom goods, the margin of preference being extended, at the same time, to 6.30 per cent. *ad valorem*. This means that if the same goods were imported from countries other than the United Kingdom, £2,044,000 additional duty would now be charged, whereas under the 1908-11 tariff the surcharge of duty would have been £1,284,000.

A comparison of the results given in the second and third tables of the series shows that while the average rate of duty on goods produced or manufactured in the United Kingdom has been increased by 3.45 per cent. of the value of the goods (from 14.20 per cent. to 17.65 per cent.), the rates on goods from other countries have been increased by 6.35 per cent. (from 20.25 per cent. to 26.60 per cent.). This is the combined result of an extension of duties to 79.66 per cent. (£29,669,821) of the imports as compared with 63.30 per cent. (£23,579,471) previously dutiable, in conjunction with an increase of the average rate on dutiable goods from 31.99 per cent. to 33.39 per cent.

Not only has the "preference" to the United Kingdom been increased by an extension of the principle to goods which did not formerly come within its scope, but in regard to many items, new duties have been imposed under the general tariff, or previous rates have been raised, while the rates on similar imports from the United Kingdom have not been altered. Thus many items which are still free if produced in the United Kingdom have become dutiable if produced elsewhere. The higher average rate of duty on United Kingdom goods is due to the increase of duties previously in force, rather than to any contraction of the free list. For example, the duty on potable spirits has been increased from 14s. to 20s. per proof gallon.

**SUMMARISED COMPARISON OF THE TARIFFS OF 1908-11 and 1914, BASED UPON THEIR APPLICATION TO THE PRODUCE OR MANUFACTURE OF THE UNITED KINGDOM IMPORTED INTO THE COMMONWEALTH DURING 1913.**

	Tariff of 1908-11.	Tariff of 1914.
Imports of free merchandise—	£	£
Favoured by preferential tariff ... ..	7,485,367	12,405,214
Under tariff common to all countries ... ..	12,409,650	7,256,586
Total imports of free merchandise ... ..	19,895,017	19,661,800
Percentage of free imports on total imports ... ..	48.59	48.02
Imports of dutiable merchandise—		
Favoured by preferential tariff ... ..	17,500,941	20,044,501
Under tariff common to all countries ... ..	3,552,845*	1,242,502*
Total imports of dutiable merchandise... ..	21,053,786	21,287,003
Percentage of dutiable imports on total imports ... ..	51.41	51.98
Total imports of merchandise ... ..	40,948,803	40,948,803
Total imports favoured by preferential tariff ... ..	24,986,308	32,449,715
Total imports favoured by preferential tariff, per cent. on total imports ... ..	61.01	79.24
Margin of preference—Per cent. <i>ad valorem</i> ... ..	5.14	6.30
Equivalent <i>ad valorem</i> rates of duty—	Per cent.	Per cent.
On total imports of merchandise ... ..	14.20	17.65
On imports of merchandise, less drink and tobacco ... ..	9.71	11.23
On <i>dutiable</i> merchandise ... ..	27.62	33.95
On <i>dutiable</i> merchandise, less drink and tobacco ... ..	19.53	22.33

\* Includes tobacco to the value of £23,154 imported in competition with similar imports from South Africa, which is favoured by preferential rates under the South African Preference Act.

*Imports from British Countries other than the United Kingdom.*—With the exception of some imports from South Africa, which are admitted under special rates by virtue of the South African Preference Act, imports from "British Possessions" are subject to the same tariff as similar goods imported from "Foreign Countries." The rebate of duty on South African goods imported during 1913 amounted to £4296 under the tariff of 1908-11. Under the 1914 tariff the rebate, as compared with similar imports from the United Kingdom, would be £3345, and against similar imports from other countries the rebate would be £3517. The smaller rebate under the 1914 tariff is the effect of the reduction of the margin on cut tobacco from 1s. 3d. to 9d. per lb., and other manufactured tobacco from 1s. to 9d. per lb.

The imports of merchandise from "British Possessions" during 1913 were valued at £7,804,483. Under the tariff of 1908-11, 34.53 per cent. of this was dutiable at an average rate of 32.46 per cent., with the result that all imports from "British Possessions" would pay an average rate of 11.21 per cent. Under the 1914 tariff, £3,085,483 (39.52 per cent.) would become dutiable at an average rate of 34.77 per cent., the effect being to increase the average rate on all imports, dutiable and free, to 13.75 per cent. This means that under the 1914 tariff these imports would be required to pay £1,073,099 duty, whereas, formerly, the duty on the same goods would have been £874,905 only. The lower proportion of dutiable goods from "British Possessions," as compared with "Foreign Countries," is due to the fact that raw materials, and animals for breeding purposes, and tea, all of which are free, enter more largely into the trade of the former than that of the latter.

Of the imports from "British Possessions" (£7,804,483), £1,106,899 would be adversely affected by the preferential tariff in favour of the United Kingdom by a surcharge of £93,161, or 8.42 per cent. *ad valorem*.

A tabular presentation of the changes made by the tariff of 1914 as they affect imports from "British Possessions" and from "Foreign Countries" is appended:—

**IMPORTS OF MERCHANDISE FROM BRITISH POSSESSIONS AND FROM FOREIGN COUNTRIES, ANALYSED ACCORDING TO THE TARIFFS OF 1908-11 and 1914.**

	Imports from British Possessions.		Imports from Foreign Countries.	
	According to Tariff of—		According to Tariff of—	
	1908-11.	1914.	1908-11.	1914.
	£	£	£	£
Free ... ..	5,108,991	4,719,000	8,558,844	2,858,485
Dutiable ... ..	2,695,492	3,085,483	20,883,979	26,584,338
Total imports ... ..	7,804,483	7,804,483	29,442,823	29,442,823
Duty payable ... ..	874,905	1,073,099	6,667,041	8,832,518
Proportion of dutiable goods ...	Per cent. 34.53	Per cent. 39.52	Per cent. 70.91	Per cent. 90.29
Average rate of duty on—				
Dutiable imports ... ..	32.46	34.77	31.92	33.22
All imports ... ..	11.21	13.75	22.65	30.00

### § 14.—Rates of Duty in Australia and other Countries.

The following table shows the proportion of the total imports of merchandise entered for "home consumption," free of duty, in the undermentioned countries, and also the equivalent *ad valorem* rates of duty charged:—

#### PROPORTION OF FREE GOODS AND RATES OF IMPORT DUTY.

Particulars.	Australia.			Canada.	New Zealand.	U.S. of America.
	31/12/06	30/6/17	Tariff of 1914 applied to Imports of 1913.	(a) 31/3/16	31/12/16	30/6/17
Year ended ... ..	...	...	...	...	...	...
Percentage of free merchandise ...	35.18	34.50	34.83	43.01	51.06	68.64
Equivalent <i>ad val.</i> rates of duty on	%	%	%	%	%	%
Spirits, wines, and malt liquors	153.23	120.88	169.98	161.26	83.14	94.32
Tobacco, and preparations thereof	168.65	155.00	202.20	13.73b	92.54	87.29d
Other dutiable merchandise ...	17.04	19.90	22.56	34.54	19.61	26.17
Other merchandise dutiable & free	10.75	12.80	14.37	19.01	8.92	7.83
Total dutiable merchandise ...	27.14	25.62	33.63	35.92	29.23	30.67
Total merchandise dutiable & free	17.59	16.78	21.91	20.47	13.60	9.62
Customs duty per head ...	£ s. d. 1 15 10	£ s. d. 2 12 9	£ s. d. —	£ s. d. 2 13 8	£ s. d. 3 5 2c	£ s. d. 0 8 6

(a) The rates of duty given in relation to imports are exclusive of war tax. £565,000, which however, is included in the duty per head of population. (b) Unmanufactured tobacco is admitted to Canada free of duty. (c) Exclusive of Maoris. (d) Tobacco is admitted free of Customs duty from the Philippine Islands.

The figures given for the year ended 30th June, 1906, represent the results of the last full year of operation of the tariff of 1902.

From the results given in the above table, it will be seen that the scheme of taxation, by means of import duties, varies materially between the countries named. In Australia and Canada, taxation is spread much more widely over imported commodities than in New Zealand or the United States of America. In the latter country, 68 per cent. of all imports are free of duty, whereas under the tariff at present in force in the Commonwealth, about 35 per cent. only of the total imports are exempt from taxation. A considerable restriction of the free list in this country was necessary to raise the revenue required by the exigencies of the war, though even prior to the war free goods represented only 42 per cent. of the total imports, while in New Zealand they comprised 52 per cent. The lower average rate of duty charged on imports into the Commonwealth during the year ended 30th June, 1917, as compared with the results obtained from the application of the same tariff to the imports of 1913, is due largely to increased prices reducing the equivalent *ad valorem* rates on goods subject to fixed rates of duty. This is particularly noticeable with regard to spirits, etc., and tobacco. Had the present tariff been in force during 1913 the imports of tobacco, cigars and cigarettes in that year would have paid an average *ad valorem* rate equivalent to 202.20 per cent., whereas on the imports of 1916-17, by reason of increased values, the same fixed rates represented an equivalent *ad valorem* rate of 155 per cent. only.



VALUE OF GOODS (EXCLUDING BULLION AND SPECIE) ENTERED FOR CONSUMPTION IN THE COMMONWEALTH, AND DUTY COLLECTED THEREON, 1916-17.

Classification of Imports.	Value Entered for Consumption.			Duty Collect'd, less Refunds.	Equivalent <i>ad valorem</i> Rate per cent. on—	
	Dutiable.	Free (Net Imports).	Total.		Dutiable Imports.	All Imports.
	£	£	£	£	%	%
I. Foodstuffs of animal origin, excluding living animals ...	1,063,678	70,743	1,134,421	184,285	17.33.	16.24
II. Foodstuffs of vegetable origin and salt ...	3,917,102	214,911	4,132,013	985,485	25.16	23.85
III. Beverages (non-alcoholic) and substances used in making ...	298,103	1,679,933	1,978,036	65,339	21.92	3.30
IV. Spirits and alcoholic liquors including industrial spirits and pharmaceutical preparations dutiable as spirits ...	1,641,200	...	1,641,200	1,983,544	120.88	120.88
V. Tobacco & preparations thereof ...	838,776	...	838,776	1,300,793	155.00	155.00
VI. Live animals ...	14,817	67,596	82,413	68	0.46	0.08
VII. Animal substances (mainly unmanufactured) not foodstuffs ...	112,344	373,440	485,784	13,006	11.58	2.68
VIII. Vegetable substances and fibres ...	255,705	2,317,509	2,573,214	46,002	18.00	1.79
IX. Apparel, textiles, and manufactured fibres ...	15,952,866	8,014,482	23,967,348	3,430,334	21.50	14.31
X. Oils, fats, and waxes ...	2,513,011	610,973	3,123,984	287,473	11.44	9.20
XI. Paints and varnishes ...	597,165	57,411	654,576	80,099	13.41	12.24
XII. Stones and minerals used industrially ...	85,913	86,562	172,475	18,880	21.98	10.95
XIII. Specie (omitted) ...	...	...	...	...	...	...
XIV. Metals (unmanufactured) and ores, including gold and silver bullion ...	115,698	343,824	459,522	9,341	8.07	2.03
XV. Metals partly manufactured ...	574,300	619,678	1,193,978	29,339	5.11	2.46
XVI. Metals manufactured, including machinery ...	7,563,192	3,158,920	10,722,112	1,380,370	18.25	12.87
XVII. Leather and manufactures of leather and substitutes therefor, also indiarubber and indiarubber manufactures ...	1,387,197	386,038	1,773,235	371,332	26.77	20.94
XVIII. Wood and wicker, raw and manufactured ...	1,745,857	33,702	1,779,559	282,942	16.21	15.90
XIX. Earthenware, cements, china, glass, and stoneware ...	1,110,845	22,310	1,133,155	221,942	19.98	19.59
XX. Paper and stationery ...	2,768,826	1,649,918	4,418,744	423,535	15.30	9.58
XXI. Jewellery, timepieces, and fancy goods ...	889,740	236,977	1,126,717	254,399	28.59	22.58
XXII. Optical, surgical, and scientific instruments ...	410,899	196,716	607,615	119,066	28.98	19.59
XXIII. Drugs, chemicals, and fertilizers ...	1,336,847	1,745,950	3,082,797	166,685	12.47	3.73
XXIV. Miscellaneous ...	3,580,076	3,803,994	7,384,070	842,696	23.54	11.41
Total merchandise ...	48,774,157	25,691,587	74,465,744	12,496,955	25.62	16.78
Merchandise, excluding stimulants and narcotics ...	46,294,181	25,691,587	71,985,768	9,212,618	19.90	12.80

## SECTION XVI.

### SHIPPING.

#### § 1. General.

1. **Record of Shipping before Federation.**—Prior to Federation it was customary for each State to regard the matter of shipping purely from the State standpoint, and vessels arriving from or departing to countries beyond Australia, via other Australian States, were recorded as if direct from or to the oversea country. Thus, a mail steamer from the United Kingdom, which made Fremantle her first port of call in Australia, would be recorded not only there, but again in Adelaide, Melbourne and Sydney, as an arrival from the United Kingdom. Consequently, any aggregation, especially of the recent shipping records of the different States, would repeatedly include a large proportion of the shipping visiting Australia. In earlier years, when many vessels sailed from the various State ports direct for their destination, the error of repeated inclusion was less serious, but as the commerce of Australia developed, more and more ports of call were included in the voyage of each vessel, and the mere aggregation of State records hence became correspondingly misleading. Failure to recognise this was at times responsible for erroneous deductions from the statistical records as then compiled.

2. **Shipping since Federation.**—With the inauguration of the Commonwealth, the statistics of its shipping, especially of its oversea shipping, became of greater intrinsic importance. As an index of the position of Australia among the trading countries of the world, such statistics had a constitutional importance commensurate with Commonwealth interests, and correspondingly greater than those of individual States, and the nationality of the shipping trading with Australia became also a matter of greater moment.

3. **Difficulties of Comparisons of Total Shipping.**—From what is said in subsection 1 above, it is obviously impossible to obtain results for Australia for pre-federal years not subject to the defect of repeated inclusions of the same vessels. Unfortunately, the statistical records of the first three years of Federal history are also subject to the same defect, and do not admit of direct comparison with those now kept. A careful estimate of the extent and effect of repeated inclusion has, however, been made and applied to the records of the earlier years, so as to extend the comparative results to those years. The error of such estimation will be negligible for comparative purposes.

4. **Present System of Record.**—The present system of record treats Australia as a unit, and counts, therefore, only one entry and one clearance for each visit to the Commonwealth. Repeated voyages of any vessel are, of course, included.

On arrival of every vessel at a port in the Commonwealth, whether from an oversea country or from another port within the Commonwealth, the master is required to deliver to the Customs officer a form giving all particulars necessary for statistical purposes in regard to the ship, passengers and crew. Similarly, on departure from a port, a form

containing corresponding information is lodged. These forms, which provide a complete record of the movements of every vessel in Commonwealth waters, are at the end of each month forwarded by the Customs officer at each port to the Commonwealth Bureau of Statistics, and furnish the material for the compilation of the Shipping and Migration Returns.

Under the system previously in force it was found that the estimates of population in so far as they were based on seaward movement, were very unsatisfactory, and it is believed that the method referred to above gives decidedly better results.

From the 1st July, 1914, the statistical year for the record of Trade and Shipping of the Commonwealth was altered from the calendar year to agree with the fiscal year.

In all instances the tonnage quoted is the net tonnage.

## § 2. Oversea Shipping.

1. **Total Oversea Shipping.**—In order to extend, as indicated, the comparison of the oversea shipping to the earliest years for which any records are available, an estimate of its probable amount has been made. This estimate is based on a comparison of the results obtained by merely aggregating State statistics, with the defect of multiple records, and the results obtained under the present system, which avoids the multiple record. From the nature of the case it is obvious that the ratio of repeated inclusion to the total traffic has been continually advancing, and this fact has been duly taken into account in deducing the results in the following table:—

### • TOTAL OVERSEA SHIPPING ENTERED AND CLEARED THE COMMONWEALTH, 1822 to 1916-17 (MULTIPLE RECORD EXCLUDED BY ESTIMATION PRIOR TO 1904).

Year.	Vessels.	Tons.	Year.	Vessels.	Tons.	Year.	Vessels.	Tons.
1822 ...	73	30,683	1854 ...	3,781	1,744,251	1886 ...	3,793	3,853,246
1823 ...	76	30,543	1855 ...	3,239	1,449,657	1887 ...	3,454	3,764,430
1824 ...	71	29,029	1856 ...	2,669	1,195,794	1888 ...	3,893	4,464,895
1825 ...	80	30,785	1857 ...	2,842	1,520,202	1889 ...	3,897	4,460,426
1826 ...	65	23,587	1858 ...	2,607	1,378,050	1890 ...	3,363	4,150,027
1827 ...	95	29,301	1859 ...	2,759	1,403,210	1891 ...	3,778	4,726,307
1828 ...	124	38,367	1860 ...	2,464	1,288,518	1892 ...	3,432	4,238,500
1829 ...	185	56,735	1861 ...	2,466	1,149,476	1893 ...	3,046	4,150,433
1830 ...	195	56,185	1862 ...	2,917	1,369,231	1894 ...	3,397	4,487,546
1831 ...	185	59,414	1863 ...	3,378	1,564,369	1895 ...	3,331	4,567,883
1832 ...	206	59,628	1864 ...	3,344	1,537,433	1896 ...	3,309	4,631,266
1833 ...	241	73,647	1865 ...	3,005	1,317,934	1897 ...	3,979	4,709,697
1834 ...	249	77,068	1866 ...	3,378	1,470,728	1898 ...	3,222	4,681,398
1835 ...	310	96,928	1867 ...	2,927	1,277,679	1899 ...	3,356	5,244,197
1836 ...	310	93,974	1868 ...	3,080	1,350,573	1900 ...	3,719	5,894,173
1837 ...	442	113,432	1869 ...	3,107	1,472,837	1901 ...	4,028	6,541,991
1838 ...	471	133,038	1870 ...	2,877	1,381,878	1902 ...	3,608	6,234,460
1839 ...	652	191,507	1871 ...	2,748	1,313,642	1903 ...	3,441	6,027,843
1840 ...	915	277,335	1872 ...	2,788	1,380,466	1904 ...	3,700	6,682,011
1841 ...	900	278,738	1873 ...	3,159	1,609,067	1905 ...	4,088	7,444,417
1842 ...	862	232,827	1874 ...	3,153	1,728,269	1906 ...	4,155	7,966,658
1843 ...	736	193,427	1875 ...	3,437	1,914,462	1907 ...	4,394	8,822,866
1844 ...	629	155,654	1876 ...	3,295	1,863,343	1908 ...	4,051	8,581,151
1845 ...	735	164,221	1877 ...	3,157	1,930,434	1909 ...	3,910	8,516,751
1846 ...	888	211,193	1878 ...	3,373	2,127,518	1910 ...	4,048	9,333,146
1847 ...	1,033	245,358	1879 ...	3,344	2,151,338	1911 ...	4,174	9,984,801
1848 ...	1,182	305,840	1880 ...	3,078	2,177,877	1912 ...	4,052	10,275,314
1849 ...	1,137	355,886	1881 ...	3,284	2,549,364	1913 ...	3,985	10,601,948
1850 ...	1,300	425,206	1882 ...	3,652	3,010,944	1914-15 ...	3,911	8,599,258
1851 ...	1,576	515,061	1883 ...	3,857	3,433,102	1915-16 ...	3,394	8,538,322
1852 ...	1,896	844,243	1884 ...	4,315	4,064,947	1916-17 ...	2,986	7,694,442
1853 ...	3,364	1,490,422	1885 ...	4,052	3,999,917			

It will be borne in mind that while the above figures in themselves have no absolute significance, nevertheless, on the assumption that the element of duplication has been in fairly constant ratio, they furnish the best available indication of the growth of Australian oversea shipping.

**2. Comparison with other Countries.**—The place of Australia among various countries in regard to oversea shipping, in normal times, is indicated in the following table, both absolutely and in respect of tonnage per head of population:—

### OVERSEA SHIPPING OF VARIOUS COUNTRIES.

Country.	Year.	Tonnage Entered and Cleared.		Country.	Year.	Tonnage Entered and Cleared.	
		Total.	Per Inhabitant.			Total.	Per Inhabitant.
Argentina Rep.	1912	23,372,714	3.2	Japan	1912	43,492,604	0.8
Belgium	1912	32,672,989	4.3	New Zealand	1916	2,940,110	2.7
Canada	1914	25,402,586	3.1	"	1913	3,438,792	3.2
Commonw'lth	1916-17	7,694,442	1.6	Norway	1912	10,806,050	4.4
"	1913	10,601,948	2.2	Un. S. Africa	1914	9,961,583	1.5
Denmark	1912	18,537,064	6.6	Sweden	1912	25,511,890	4.6
France	1912	62,775,775	1.6	United K'dom	1913	164,809,581	3.6
Germany	1912	51,065,940	0.8	United States	1916	76,682,845*	0.7
Italy	1912	56,889,048	1.6				

\* Exclusive of Northern Border and Lake Ports.

**3. Shipping Communication with various Countries.**—Particulars of the number and tonnage of vessels recorded between Australia and various countries, distinguishing British from foreign countries, are given in the following tables—the next table shewing the tonnage of vessels which were recorded as having entered the Commonwealth from the particular countries mentioned; that on page 622 shews the tonnage of vessels which were recorded as having cleared the Commonwealth for the particular countries, while on page 623 is shewn the total tonnage of vessels recorded as entered and cleared from and to the countries named.

The smaller tonnage which entered and cleared Commonwealth ports during the last three years, together with its altered distribution among the various countries, was, of course, almost entirely due to the war. The principal factor in reducing shipping tonnage was the immediate withdrawal of ships of enemy countries. During 1913 German ships to and from the Commonwealth aggregated a tonnage of 1,211,404 tons, whereas the figures for 1914-15 include only 172,679 tons of German shipping. This latter tonnage represents vessels which arrived and departed between the 1st July, 1914, and the outbreak of war, together with a few vessels that arrived later in ignorance of the opening of hostilities. Any German ships now entering the Commonwealth are operated under the British or Allied flags, and are classified accordingly.

The control of shipping by the Imperial Government for war purposes materially lessened the number of voyages of mail boats to and from England, and the tonnage of the Messageries Maritimes line was reduced from similar causes, whereas the increase shewn in the tonnage to and from India and Ceylon and "Other British Countries" represents vessels engaged in war transport services.

**SHIPPING TONNAGE ENTERED AND CLEARED THE COMMONWEALTH FROM  
AND TO VARIOUS COUNTRIES, 1912 to 1916-17.**

**ENTERED.**

Country.	1912.	1913.	1914-15.	1915-16.	1916-17.
United Kingdom ...	1,625,733	1,607,943	1,285,791	1,193,044	1,234,526
Canada ...	112,729	118,604	144,229	143,275	114,246
Fiji ...	73,033	86,442	85,442	72,612	67,981
Hong Kong ...	27,440	33,156	19,898	16,740	26,879
India and Ceylon ...	93,787	107,721	265,273	232,019	253,157
Mauritius ...	27,203	36,092	19,569	17,198	26,585
New Zealand ...	926,342	908,484	771,656	758,622	654,747
Papua ...	73,010	74,943	72,837	66,134	76,063
Union of South Africa ...	96,679	198,505	84,365	93,262	86,465
South Sea Islands ...	37,472	58,498	24,279	44,191	27,552
Straits Settlements ...	102,598	100,238	106,534	105,531	78,433
Other British Countries ...	3,068	10,826	134,057	300,958	73,547
<b>Total British Countries ...</b>	<b>3,199,094</b>	<b>3,341,452</b>	<b>3,013,930</b>	<b>3,043,586</b>	<b>2,720,181</b>
Africa, Portuguese East ...	46,751	63,870	14,391	4,812	34,517
Belgium ...	11,852	9,563	6,871	...	...
Chile ...	176,416	108,121	38,288	19,165	6,581
Dutch East Indies ...	67,761	87,428	87,245	83,648	107,311
France ...	47,191	63,632	34,633	40,652	32,779
Germany ...	427,320	414,294	74,208	...	...
Hawaiian Islands ...	16,508	10,101	...	1,653	...
Japan ...	157,734	160,241	125,789	189,200	164,388
Mexico ...	19,445	9,973	...	...	...
New Caledonia ...	77,265	86,702	41,398	30,906	30,782
Norway ...	34,715	26,200	47,649	29,530	15,967
Peru ...	35,482	21,504	5,973	5,790	3,953
Philippine Islands ...	56,216	47,220	26,943	8,399	...
South Sea Islands (foreign) ...	67,805	66,651	73,762	77,309	73,530
Sweden ...	48,060	80,546	37,504	19,576	20,861
United States ...	453,354	509,922	426,513	570,918	470,624
Other Foreign Countries ...	220,388	264,111	119,858	144,340	169,823
<b>Total Foreign Countries ...</b>	<b>1,964,263</b>	<b>2,030,079</b>	<b>1,161,025</b>	<b>1,225,898</b>	<b>1,131,111</b>
<b>Total all Countries ...</b>	<b>5,163,357</b>	<b>5,371,531</b>	<b>4,174,955</b>	<b>4,269,484</b>	<b>3,851,292</b>

## SHIPPING TONNAGE ENTERED AND CLEARED, ETC.—(Continued).

## CLEARED.

Country.	1912.	1913.	1914-15.	1915-16.	1916-17.
United Kingdom ...	1,369,143	1,455,018	1,031,279	894,628	1,862,460
Canada ...	54,661	82,849	90,105	101,485	95,215
Fiji ...	85,372	94,958	91,343	81,731	83,514
Hong Kong ...	32,121	27,959	30,566	17,047	18,742
India and Ceylon ...	144,487	126,656	210,688	112,989	108,928
Mauritius ...	4,526	3,505	7,681	2,817	1,558
New Zealand ...	1,183,741	1,198,837	916,809	894,618	640,703
Papua ...	66,409	73,923	63,962	58,378	82,816
Union of South Africa ...	75,467	136,986	67,278	90,546	79,054
South Sea Islands ...	55,717	58,267	24,484	74,027	43,828
Straits Settlements ...	137,139	155,364	115,894	114,831	74,538
Other British Countries ...	...	2,270	522,870	807,481	30,982
<b>Total British Countries</b>	<b>3,208,783</b>	<b>3,416,592</b>	<b>3,172,959</b>	<b>3,250,578</b>	<b>3,122,338</b>
Africa, Portuguese East ...	3,836	5,447	2,691	...	...
Belgium ...	169,020	151,718	34,245	...	...
Chile ...	508,724	398,322	255,547	159,797	80,832
Dutch East Indies ...	155,332	189,499	180,649	112,912	95,283
France ...	94,062	81,240	54,642	29,591	35,820
Germany ...	349,685	385,752	38,358	...	...
Hawaiian Islands ...	34,009	45,634	37,770	16,286	7,014
Japan ...	96,108	117,472	73,228	135,876	119,193
Mexico ...	12,757	25,735	4,461	...	...
New Caledonia ...	74,063	86,321	43,581	51,893	52,297
Peru ...	64,881	52,626	24,431	18,584	21,698
Philippine Islands ...	95,120	46,746	72,272	18,385	2,032
South Sea Islands (foreign) ...	44,875	36,826	52,785	55,855	50,615
United States ...	149,449	148,754	266,133	337,179	173,052
Other Foreign Countries	51,253	41,733	110,551	81,902	82,971
<b>Total Foreign Countries</b>	<b>1,903,174</b>	<b>1,813,825</b>	<b>1,251,344</b>	<b>1,018,260</b>	<b>720,812</b>
<b>Total all Countries</b> ...	<b>5,111,957</b>	<b>5,230,417</b>	<b>4,424,303</b>	<b>4,268,838</b>	<b>3,843,150</b>

The figures in the above table represent the tonnage of shipping recorded as having cleared the Commonwealth for the particular countries named. In the following sub-section countries have been grouped according to larger geographical divisions with the purpose of depicting more clearly the general trend of Australian shipping.

Beyond the immediate military control of shipping, tonnage was further affected by the prohibition by the Government of the export of certain commodities. For instance, the restrictions placed on the export of coal were mainly responsible for the relatively small tonnage between this country and Chile and Peru.

**SHIPPING TONNAGE ENTERED AND CLEARED THE COMMONWEALTH FROM  
AND TO VARIOUS COUNTRIES, 1912 to 1916-17.**

Country.	1912.	1913.	1914-15.	1915-16.	1916-17.
United Kingdom ... ..	2,994,876	3,062,961	2,317,070	2,087,672	3,096,986
Canada ... ..	167,390	201,453	234,334	244,760	209,461
Fiji ... ..	158,405	181,400	176,785	154,343	151,495
Hong Kong ... ..	59,561	61,115	50,464	33,787	45,621
India and Ceylon ... ..	238,274	234,377	475,961	345,008	362,085
Mauritius ... ..	31,729	39,597	27,250	20,015	28,143
New Zealand ... ..	2,110,083	2,107,321	1,688,465	1,653,240	1,295,450
Papua ... ..	139,419	148,866	136,799	124,512	158,879
Union of South Africa ... ..	172,146	335,491	151,643	183,808	165,519
South Sea Islands ... ..	93,189	116,765	48,763	118,218	71,380
Straits Settlements ... ..	239,737	255,602	222,428	220,362	152,971
Other British Countries ... ..	3,068	13,096	656,927	1,108,439	104,529
<b>Total British Countries ... ..</b>	<b>6,407,877</b>	<b>6,758,044</b>	<b>6,186,889</b>	<b>6,294,164</b>	<b>5,842,519</b>
Africa, Portuguese East ... ..	50,587	69,317	17,082	4,812	34,517
Belgium ... ..	180,872	161,281	41,116	...	...
Chile ... ..	685,140	506,443	293,335	178,962	87,413
Dutch East Indies ... ..	223,093	276,927	267,894	196,560	202,594
France ... ..	141,253	144,872	89,275	70,243	68,599
Germany ... ..	777,005	800,046	112,566	...	...
Hawaiian Islands ... ..	50,517	55,735	37,770	17,939	7,014
Japan ... ..	253,842	277,713	199,017	325,076	283,581
Mexico ... ..	32,202	35,708	4,461	...	...
New Caledonia ... ..	151,328	173,023	84,979	82,799	83,079
Norway ... ..	34,715	26,289	47,649	32,222	15,967
Peru ... ..	100,363	74,130	30,404	24,374	25,651
Philippine Islands ... ..	151,336	93,966	99,215	26,784	2,032
South Sea Islands (foreign) ... ..	112,680	103,477	126,547	133,164	124,145
Sweden ... ..	48,060	80,546	37,504	19,576	20,861
United States ... ..	602,803	658,676	692,646	908,097	643,676
Other Foreign Countries ... ..	271,641	305,755	230,409	223,550	252,794
<b>Total Foreign Countries ... ..</b>	<b>3,867,437</b>	<b>3,843,904</b>	<b>2,412,369</b>	<b>2,244,158</b>	<b>1,851,923</b>
<b>Total all Countries ... ..</b>	<b>10,275,314</b>	<b>10,601,948</b>	<b>8,599,258</b>	<b>8,538,322</b>	<b>7,694,442</b>

In respect of these tables it may be pointed out that the statistics for any country do not fully disclose the extent of its shipping communication with particular countries. The reason for this is that vessels are recorded as arriving from, or departing to, a particular country, whereas, as a matter of fact, many regular lines of steamers call and transact business at the ports of several countries in the course of a single voyage. The lines of steamers trading between Australia and Japan, for example, often call at New Guinea, the Philippine Islands, China, etc., but, being intermediate ports, these countries are not referred to in the statistical records. Similarly, in the case of the large mail steamers passing through the Suez Canal, a steamer may call at Colombo, Aden, Port Said, Genoa, Marseilles, London, and in ordinary times, Antwerp and Bremerhaven, yet obviously can only be credited as cleared for one of these ports, to the consequent exclusion of all the other ports from the records.

**4. General Trend of Shipping.**—A grouping of countries into larger geographical divisions, as in the following tables, shews more readily the general direction of Australian shipping, and, to some extent, avoids the limitations of the records in relation to particular countries, by covering more closely the main trade routes.

## GENERAL DIRECTION OF THE SHIPPING OF THE COMMONWEALTH, 1912 to 1916-17.

## TONNAGE ENTERED.

Countries.	—	1912.	1913.	1914-15.	1915-16.	1916-17.
United Kingdom & European Countries	Cargo...	2,152,304	2,216,449	1,509,237	1,267,819	1,004,820
	Ballast	71,746	28,067	16,282	81,649	374,380
New Zealand ... ..	Cargo...	751,759	681,650	649,252	648,733	559,604
	Ballast	174,583	226,834	132,404	109,889	95,143
Asiatic Countries & Islds. in the Pacific	Cargo...	761,854	785,031	799,811	817,141	782,563
	Ballast	104,197	163,620	217,666	151,296	206,671
Africa ... ..	Cargo...	23,561	35,174	50,315	114,914	32,373
	Ballast	151,459	269,181	154,550	288,316	163,096
North and Central America	Cargo...	560,933	624,275	568,329	714,193	584,870
	Ballast	24,595	14,224	4,065	...	...
South America ... ..	Cargo...	31,291	23,876	26,798	61,940	9,294
	Ballast	355,075	300,130	56,246	13,694	32,478
	Cargo...	4,281,702	4,369,455	3,603,742	3,624,740	2,979,524
	Ballast	881,655	1,002,076	571,213	644,744	871,768
Total ... ..	...	5,163,357	5,371,531	4,174,955	4,269,484	3,851,292

## TONNAGE CLEARED.

United Kingdom & European Countries	Cargo...	2,006,275	2,102,203	1,169,592	961,961	1,878,530
	Ballast	44	162	...	2,699	37,311
New Zealand ... ..	Cargo...	1,148,166	1,166,596	865,780	817,827	612,509
	Ballast	35,575	32,239	51,029	76,791	28,194
Asiatic Countries & Islds. in the Pacific	Cargo...	984,875	995,644	966,549	767,700	706,062
	Ballast	42,738	66,414	99,715	126,921	79,535
Africa ... ..	Cargo...	83,829	148,750	559,540	851,543	126,071
	Ballast	...	237	6,130	32,148	156
North and Central America	Cargo...	204,116	251,739	305,835	342,332	225,580
	Ballast	12,751	5,599	56,762	100,842	43,306
South America ... ..	Cargo...	592,248	460,832	210,292	158,696	100,148
	Ballast	1,340	...	133,079	29,378	5,848
	Cargo...	5,019,509	5,125,766	4,077,588	3,900,059	3,648,900
	Ballast	92,448	104,651	346,715	368,779	194,250
Total ... ..	...	5,111,957	5,230,417	4,424,303	4,268,838	3,843,150

## TONNAGE ENTERED AND CLEARED.

Countries.	1912.	1913.	1914-15.	1915-16.	1916-17.	1916-17 Compared with 1911.
United Kingdom & European Countries ... ..	4,230,369	4,346,901	2,695,111	2,314,128	3,294,941	— 917,864
New Zealand ... ..	2,110,063	2,107,321	1,688,465	1,653,240	1,295,450	— 590,309
Asiatic Countries and Islands in the Pacific ... ..	1,893,664	2,010,709	2,083,741	1,863,058	1,774,831	— 47,226
Africa ... ..	258,849	456,342	770,535	1,286,821	327,696	— 174,093
North and Central America	802,395	895,837	934,991	1,157,367	853,756	+ 125,912
South America ... ..	979,954	784,838	426,415	263,708	147,768	— 686,779
Cargo ... ..	9,301,211	9,495,221	7,681,330	7,524,799	6,628,424	— 2,155,373
Ballast ... ..	974,103	1,106,727	917,928	1,013,523	1,066,018	— 134,986
Total ... ..	10,275,314	10,601,948	8,599,258	8,538,322	7,694,442	— 2,290,359

From these tables it would appear that the tonnage between Australia and Africa was greater during 1915-16 than in 1913. This, however, is merely the effect of the diversion of shipping from its usual occupation to military transport between this country and Egypt.



5. **Nationality of Oversea Shipping.**—As will be seen from the following table, the greater part of the shipping visiting the Commonwealth is of British nationality. The proportion which British shipping represented of the total tonnage which entered and cleared the Commonwealth rose from 72.83 per cent. during 1913 to 82.41 per cent. in 1914-15 and in 1916-17 represented 81.53 per cent. This increase was almost entirely due to the withdrawal of German ships.

The greatly reduced tonnage of French and Norwegian ships in the Australian trade has been replaced, to some extent, by United States and Dutch vessels.

**NATIONALITY OF ALL VESSELS WHICH ENTERED AND CLEARED THE COMMONWEALTH FROM AND TO OVERSEA COUNTRIES, 1912 to 1916-17.**

Nationality.	Tonnage.				
	1912.	1913.	1914-15.	1915-16.	1916-17.
<b>BRITISH—</b>					
Australian ...	889,285	851,931	1,107,402	1,118,470	887,577
United Kingdom...	5,299,157	5,590,966	4,897,452	5,304,683	4,980,205
New Zealand ...	1,274,584	1,247,742	1,017,721	515,187	335,467
Other British ...	51,199	30,459	64,040	42,808	69,701
Cargo ...	6,949,115	6,915,261	6,406,393	6,189,524	5,448,832
Ballast ...	565,110	805,837	680,222	791,624	824,118
Total British ...	7,514,225	7,721,098	7,086,615	6,981,148	6,272,950
Per cent. on total	73.13	72.83	82.41	81.76	81.53
<b>FOREIGN—</b>					
Austro-Hungarian ...	28,689	32,940	...	...	...
Danish ...	5,573	10,138	...	47,259	18,950
Dutch ...	120,864	193,880	198,223	279,291	285,508
French ...	356,207	366,730	199,619	180,144	120,269
German ...	1,211,738	1,211,404	172,679	...	...
Italian ...	51,098	55,898	39,147	8,886	79,925
Japanese ...	252,081	224,293	257,709	362,266	272,460
Norwegian ...	527,121	471,914	302,767	173,343	100,394
Russian ...	63,286	75,303	56,528	9,199	26,352
Swedish ...	37,330	59,484	60,600	56,234	43,866
United States ...	92,605	154,486	178,620	397,017	424,628
Other Foreign ...	14,497	24,380	46,751	43,535	49,140
Cargo ...	2,352,096	2,579,960	1,274,937	1,335,275	1,179,592
Ballast ...	408,993	300,890	237,706	221,899	241,900
Total Foreign ...	2,761,089	2,880,850	1,512,643	1,557,174	1,421,492
Per cent. on total	26.87	27.17	17.59	18.24	18.47
Cargo ...	9,301,211	9,495,221	7,681,330	7,524,799	6,628,424
Per cent. on total	90.52	89.56	89.33	88.13	86.15
Ballast ...	974,103	1,106,727	917,928	1,013,523	1,066,018
Per cent. on total	9.48	10.44	10.67	11.87	13.85
Grand total ...	10,275,314	10,601,948	8,599,258	8,538,322	7,694,442

The tonnage of Australian-owned vessels engaged in the oversea trade represents in normal times about 8 per cent. of the total, and the tonnage of New Zealand vessels about 12 per cent. Both are ordinarily engaged mainly in the trade with New Zealand and eastern countries. The increase shewn above in Australian tonnage during the years 1914-15 and 1915-16 was a consequence of the diversion of vessels from the interstate trade to military purposes in transporting troops, etc., abroad. Several of these vessels have since been lost by enemy operations, and others have been further diverted from the Australian trade.

The relative proportion of British and foreign tonnage which entered and cleared the Commonwealth during the last five years, apart from tonnage in ballast, is given below. From these figures, which may be considered to indicate more closely the proportion of the actual carrying trade done, than does the total tonnage, it will be seen that the proportion of British tonnage was lower during 1913 than in any other year shewn. In fact, since 1904, when the shipping statistics were first compiled in their present form, the proportion of British ships entered and cleared with cargo has never been so low as in 1913. From what has already been said it will be understood that the figures for 1914-15 and subsequent years are the result of abnormal conditions, and are, therefore, of little economic significance.

**PROPORTION OF TONNAGE OF BRITISH AND FOREIGN NATIONALITY ENTERED  
AND CLEARED THE COMMONWEALTH WITH CARGO, 1912 to 1916-17.**

Nationality.				1912.	1913.	1914-15.	1915-16.	1916-17.
British	...	...	...	74.71	72.83	83.40	82.26	82.20
Foreign	...	...	...	25.29	27.17	16.60	17.74	17.80
Total	...	...	...	100.00	100.00	100.00	100.00	100.00

The principal increases in foreign tonnage in the Australian trade have been German, Japanese, United States of America, Norwegian, and Dutch. The greater amount of German and Japanese tonnage has been due to the extension of services between those countries and the Commonwealth, while the revival of the service between this country and San Francisco, which was discontinued after the great earthquake in that city in 1906, accounts for the larger American tonnage in 1913, whereas the subsequent trade development between this country and the United States accounts for the large increase of American shipping during the last two years under review. The Norwegian tonnage, which was largely composed of sailing ships, was chiefly engaged under charter in the carriage of coal, wheat, ore, etc. The Norwegian shipping in the Australian trade has been, however, much affected by the war. The apparent increase in Dutch tonnage requires special explanation. During recent years the vessels of the Royal Dutch Packet Company, on their voyages between Java and the eastern Australian ports, have been frequently, but unavoidably, counted twice on what was practically the same voyage, first on arrival from Java and again on arrival from Papua. As in the case of the United States of America, the increase of Japanese shipping tonnage has been the corollary of increased Japanese trade with Australia.

The following table shews the direction of the activities of the principal foreign countries engaged in the oversea carrying trade of the Commonwealth. A similar analysis with regard to German and French ships will be found in previous issues.

**SHIPPING OF PRINCIPAL FOREIGN NATIONS BETWEEN AUSTRALIA AND OTHER COUNTRIES DURING 1916-17.**

Countries.	Nationality.					
	Dutch.		Japanese.		United States.	
	Entered.	Cleared.	Entered.	Cleared.	Entered.	Cleared.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
NEW ZEALAND ...	...	...	3,421	4,004	6,143	1,258
ASIATIC COUNTRIES AND ISLANDS IN THE PACIFIC—						
Dutch East Indies ...	66,500	57,831	942	6,164	...	...
Japan ...	...	...	116,520	101,434	...	796
New Caledonia ...	...	...	3,528	...	...	...
Papua ...	73,893	77,054	...	...	...	...
South Sea Islands ...	...	...	171	9,776	4,333	23,518
Straits Settlements ...	...	...	...	1,885	...	...
Other Asiatic Countries ...	...	7,956	4,977	11,507	615	2,032
AFRICAN COUNTRIES ...	...	...	...	...	923	...
NTH. AMERICAN COUNTRIES—						
United States ...	2,274	...	4,229	...	201,186	137,966
Other Nth. Amer. Countries...	...	...	...	...	...	3,234
STH. AMERICAN COUNTRIES—						
Chile ...	...	1,960	...	2,282	...	33,050
Peru ...	...	...	...	1,620	...	9,574
With Cargo ...	129,547	138,255	125,897	125,466	206,442	158,531
In Ballast ...	13,120	6,546	7,891	13,206	6,758	52,897
Total ...	142,667	144,801	133,788	138,672	213,200	211,428

A further analysis is appended, distinguishing between steam and sailing vessels of British and foreign nationality, which entered and cleared the Commonwealth during the years 1912 to 1916-17.

**STEAM AND SAILING VESSELS ENTERED AND CLEARED, 1912 to 1916-17.**

Description and Nationality of Vessels.	1912.		1913.		1914-15.		1915-16.		1916-17.	
	Ton-nage.	Per-centages.	Ton-nage.	Per-centages.	Ton-nage.	Per-centages.	Ton-nage.	Per-centages.	Ton-nage.	Per-centages.
Steam—										
British ...	7,084,126	79	7,375,109	77	6,939,087	86	6,760,751	86	6,154,313	85
Foreign ...	1,908,888	21	2,173,491	23	1,103,093	14	1,106,465	14	1,068,404	15
Total Steam	8,993,014	100 (88)	9,548,600	100 (90)	8,042,179	100 (94)	7,867,216	100 (92)	7,222,717	100 (94)
Sailing—										
British ...	430,099	34	345,989	33	147,528	26	220,397	33	118,637	25
Foreign ...	552,201	66	707,359	67	409,551	74	450,709	67	353,088	75
Total Sailing	1,282,300	100 (12)	1,053,348	100 (10)	557,079	100 (6)	671,106	100 (8)	471,725	100 (6)
Steam and Sailing—										
British ...	7,514,225	73	7,721,098	73	7,086,615	83	6,981,148	82	6,272,950	82
Foreign ...	2,761,089	27	2,880,850	27	1,512,643	18	1,557,174	18	1,421,492	18
Total ...	10,275,314	100	10,601,948	100	8,599,258	100	8,538,322	100	7,694,442	100

6. **Tonnage in Ballast.**—The following table shews the tonnage of oversea vessels which entered and cleared the Commonwealth in ballast during the years 1911 to 1916-17.

**TONNAGE ENTERED AND CLEARED IN BALLAST, 1911 to 1916-17.**

Year.	Entered.			Cleared.		
	British.	Foreign.	Total.	British.	Foreign.	Total.
1911 ...	668,599	409,837	1,078,436	81,120	41,448	122,568
1912 ...	503,041	378,614	881,655	62,069	30,379	92,448
1913 ...	721,124	280,952	1,002,076	84,713	19,938	104,651
1914-15 ...	441,908	129,305	571,213	238,314	108,401	346,715
1915-16 ...	595,591	49,153	644,744	196,033	172,746	368,779
1916-17 ...	720,040	151,728	871,768	104,078	90,172	194,250

**PROPORTION OF TOTAL BRITISH AND FOREIGN TONNAGE WHICH ENTERED AND CLEARED IN BALLAST, 1911 to 1916-17.**

Year.	Entered.			Cleared.		
	British.	Foreign.	Total.	British.	Foreign.	Total.
	per cent.	per cent.	per cent.	per cent.	per cent.	per cent.
1911 ...	18.09	31.61	21.60	2.19	3.23	2.46
1912 ...	13.31	27.34	17.03	1.66	2.21	1.81
1913 ...	18.39	19.37	18.66	2.23	1.39	2.00
1914-15 ...	12.88	17.36	13.68	6.51	14.12	7.84
1915-16 ...	17.02	6.38	15.10	5.63	21.95	8.64
1916-17 ...	22.95	21.25	22.64	3.32	12.75	5.05

The tonnage which entered each State of the Commonwealth, in ballast, during 1916-17, was as follows:—

**TONNAGE OF OVERSEA VESSELS IN BALLAST WHICH ENTERED EACH STATE AND THE NORTHERN TERRITORY DURING 1916-17.**

State ...	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Terr.	C'wealth.
Tonnage ...	276,263	86,777	9,818	82,134	414,932	...	1,844	871,768
Percentage of total ...	31.69	9.95	1.13	9.42	47.60	...	0.21	100.00

In normal times the large exports of coal from New South Wales afford special inducements to vessels in search of freights. During 1913, 600,050 tons, or 59.88 per cent. of all ballast tonnage arriving in Australia, entered in New South Wales, 463,134 tons having entered at the coal port of Newcastle. The tonnage in ballast into New South Wales is mainly for coal cargo, into South Australia for wheat and ore, and into Western Australia for timber and cattle. War conditions have, however, completely deranged the shipping of the Commonwealth, and the relatively large tonnage entering Western Australian ports in ballast represented vessels on military transport service.

### § 3. Shipping of Ports.

1. **Shipping of Ports.**—Appended is an abstract of the total shipping tonnage—over-sea and coastwise—which entered the more important ports of Australia during the year 1916-17, together with similar information in regard to some of the ports of New Zealand for the year 1916, and of the United Kingdom for the year 1913 :—

#### SHIPPING OF PORTS, AUSTRALIA, NEW ZEALAND, AND THE UNITED KINGDOM.

Port.	Tonnage Entered.	Port.	Tonnage Entered.
<b>AUSTRALIA—</b>		<b>ENGLAND AND WALES—</b>	
Sydney ... ..	6,725,828	London ... ..	20,088,071
Melbourne ... ..	5,892,661	Liverpool (inc. Birkenhead) ... ..	15,574,989
Newcastle ... ..	3,293,717	Cardiff ... ..	12,603,349
Fremantle ... ..	2,056,798	Tyne ports ... ..	11,701,605
Brisbane ... ..	1,894,846	Southampton ... ..	8,268,860
Adelaide... ..	*1,746,860	Hull ... ..	5,904,698
Townsville ... ..	1,074,865	Plymouth ... ..	4,717,738
Albany ... ..	966,767	Newport ... ..	3,630,681
Rockhampton ... ..	689,498	Middlesbrough ... ..	3,416,582
Mackay ... ..	601,515	Swansea ... ..	3,374,439
Port Pirie ... ..	513,958	Sunderland ... ..	3,288,949
Cairns ... ..	475,972	Grimsby ... ..	3,056,578
Hobart ... ..	404,731	Bristol ... ..	2,732,832
Bowen ... ..	400,741	Manchester ... ..	2,685,184
Geelong ... ..	328,995	Dover ... ..	2,606,277
Burnie ... ..	270,811	<b>SCOTLAND—</b>	
Thursday Island ... ..	213,713	Glasgow ... ..	6,101,819
<b>NEW ZEALAND—</b>		Leith ... ..	2,344,195
Wellington ... ..	2,833,351	<b>IRELAND—</b>	
Auckland ... ..	1,813,711	Cork (inc. Queenstown) ... ..	4,317,966
Lyttelton ... ..	1,633,972	Belfast ... ..	3,345,779
Dunedin ... ..	814,216	Dublin ... ..	2,495,854

\* Exclusive of coastal shipping, particulars of which are not available.

From the figures above it may be seen that the shipping business of the port of Sydney is exceeded by that of five ports only in the United Kingdom, viz., London, Liverpool, Cardiff, the Tyne, and Southampton.

### § 4. Vessels Built and Registered.

1. **Vessels Registered.**—The following table shews the number and net tonnage of steam, sailing, and other vessels on the registers of the various States and of the Northern Territory of the Commonwealth of Australia :—

#### VESSELS ON THE REGISTER, 31st DECEMBER, 1917.

State.	Steam.				Sailing.				Barges, Hulks, Dredges, etc., not Self-propelled.		Total.	
	Dredges and Tugs.		Other.		Fitted with Auxiliary Power.		Other.					
	No.	Net Tons.	No.	Net Tons.	No.	Net Tons.	No.	Net Tons.	No.	Net Tons.	No.	Net Tons.
New South Wales ...	45	1,511	575	97,990	97	1,544	334	22,815	51	11,525	1,102	135,485
Victoria ... ..	26	2,843	163	126,798	21	724	91	5,167	77	31,073	378	166,605
Queensland ... ..	23	3,439	80	16,780	22	219	131	2,422	35	3,862	291	26,732
South Australia ...	21	834	94	53,171	10	380	61	3,960	67	11,719	273	70,064
Western Australia ...	12	213	40	26,833	11	191	329	5,167	27	7,030	419	39,434
Tasmania ... ..	5	302	55	11,107	46	1,169	100	3,357	2	563	208	16,498
Northern Territory	...	...	1	53	2	26	32	987	...	...	35	466
Total ... ..	132	9,142	1,008	332,732	209	4,353	1,098	43,275	253	65,772	2,706	455,274

2. **Vessels Built.**—The following tables shew the number and tonnage of vessels built in the Commonwealth during each of the years 1901-1917, so far as such information can be ascertained from the Shipping Registers of the various States. The Merchant Shipping Act, under which vessels are registered in Australia, however, does not make it compulsory to register vessels under 15 tons burthen if engaged in river or coastal trade. Larger vessels are also exempt from registration if not engaged in trade. Yachts and small trading vessels may be, and frequently are, registered at the request of the owners. As the Shipping Registers have been, and are, the source of information, it follows that the figures given below will be subject to additions in the future, inasmuch as vessels already built may be added to the register at some future date.

## VESSELS BUILT IN THE COMMONWEALTH, 1901 to 1917.

## NUMBER.

Year.	Steamers Built of—					Oil Motor Vessels.	Sailing.	Pontoons, Dredges, etc.	Total.
	Wood.	Iron.	Steel.	Composite.	Total.				
1901 ...	18	...	1	...	19	4	45	...	68
1902 ...	29	...	...	1	30	8	78	1	117
1903 ...	15	1	2	...	18	17	158	2	195
1904 ...	14	...	1	1	16	13	76	...	105
1905 ...	15	...	4	...	19	22	17	2	60
1906 ...	12	1	1	...	14	22	20	3	59
1907 ...	17	...	...	1	18	12	37	1	68
1908 ...	13	...	3	...	16	18	18	2	54
1909 ...	10	...	...	...	10	12	36	1	59
1910 ...	9	3	2	...	14	11	35	4	64
1911 ...	14	1	2	1	18	8	37	4	67
1912 ...	9	...	3	2	14	12	30	1	57
1913 ...	17	...	2	...	19	12	29	...	60
1914 ...	17	...	...	...	17	8	28	2	55
1915 ...	4	...	2	...	6	5	3	...	14
1916 ...	1	...	...	...	1	4	2	...	7
1917 ...	...	...	...	1	1	...	5	...	6

## TONNAGE.

Year.	Steamers.		Oil Motor Vessels.		Sailing.		Pontoons, Dredges, etc.		Total.	
	Gross.	Net.	Gross.	Net.	Gross.	Net.	Gross.	Net.	Gross.	Net.
1901 ...	2,270	1,251	41	33	1,169	1,027	...	...	3,480	2,311
1902 ...	3,166	1,849	96	82	2,482	2,148	64	64	5,808	4,143
1903 ...	1,569	956	624	455	3,211	2,758	385	350	5,789	4,519
1904 ...	2,094	1,240	161	125	1,641	1,416	...	...	3,896	2,781
1905 ...	2,444	1,462	291	214	338	290	967	896	4,040	2,862
1906 ...	1,426	735	268	189	498	425	546	536	2,738	1,885
1907 ...	2,381	1,305	108	93	840	778	152	145	3,481	2,321
1908 ...	2,492	1,317	265	199	510	428	260	260	3,527	2,204
1909 ...	1,351	735	184	151	805	677	98	98	2,438	1,661
1910 ...	1,944	1,105	137	124	807	691	688	646	3,576	2,566
1911 ...	2,123	1,130	143	115	779	694	762	720	3,807	2,659
1912 ...	2,592	1,592	391	304	673	579	78	78	3,784	2,553
1913 ...	2,227	1,189	300	205	510	484	...	...	3,037	1,878
1914 ...	3,041	1,595	118	97	510	452	148	148	3,817	2,292
1915 ...	914	385	178	115	186	176	...	...	1,278	676
1916 ...	52	27	55	44	39	28	...	...	146	99
1917 ...	104	30	...	...	229	161	...	...	333	191

## § 5. Interstate Shipping.

1. **Total Vessels and Tonnage.**—In the following tables are shewn the number and tonnage of vessels recorded as having entered each State of the Commonwealth from any other State therein, and similarly, the number and tonnage cleared from each State to other Commonwealth States. The table gives results since 1891 and for 1916-17. The shipping on the Murray River, between the States of New South Wales, Victoria and South Australia, is not included:—

## INTERSTATE SHIPPING, 1891 to 1916-17—NUMBER OF VESSELS.

## ENTERED.

State.	1891.	1901.	1906.	1911.	1915-16.	1916-17.
New South Wales ...	1,692	1,611	1,575	1,791	1,947	1,607
Victoria ...	1,525	1,502	1,561	1,648	1,736	1,423
Queensland ...	376	430	478	567	570	525
South Australia ...	611	650	752	789	631	539
Western Australia ...	149	446	335	415	350	385
Tasmania ...	680	713	840	864	864	728
Northern Territory ...	*	*	*	39	39	29
Total ...	5,033	5,352	5,541	6,113	6,137	5,236

## CLEARED.

New South Wales ...	1,415	1,473	1,417	1,728	1,871	1,572
Victoria ...	1,733	1,569	1,610	1,765	1,906	1,580
Queensland ...	389	395	431	572	547	479
South Australia ...	716	756	802	900	657	579
Western Australia ...	158	456	363	394	325	310
Tasmania ...	679	694	809	836	845	717
Northern Territory ...	*	*	*	40	42	23
Total ...	5,090	5,343	5,432	6,235	6,193	5,260

## TOTAL.

New South Wales ...	3,107	3,084	2,992	3,519	3,818	3,179
Victoria ...	3,258	3,071	3,171	3,413	3,642	3,003
Queensland ...	765	825	909	1,139	1,117	1,004
South Australia ...	1,327	1,406	1,554	1,689	1,288	1,118
Western Australia ...	307	902	698	809	675	695
Tasmania ...	1,359	1,407	1,649	1,700	1,709	1,445
Northern Territory ...	*	*	*	79	81	52
Total ...	10,123	10,695	10,973	12,348	12,330	10,496

\* Included with South Australia.

## INTERSTATE SHIPPING, 1891 to 1916-17—TONNAGE.

## ENTERED.

State.	1891.	1901.	1906.	1911.	1915-16.	1916-17.
New South Wales	1,617,559	2,031,089	2,456,269	3,318,605	3,563,812	3,104,717
Victoria ...	1,392,818	1,956,900	2,473,771	2,959,551	2,800,103	2,254,634
Queensland ...	267,753	545,469	692,354	840,052	995,373	963,931
South Australia ...	658,600	1,124,499	1,582,802	1,970,490	1,628,771	1,302,537
Western Australia	237,708	973,474	968,664	1,378,800	1,305,537	1,373,625
Tasmania ...	371,205	485,023	721,240	895,546	749,494	525,862
North'm Territory	*	*	*	64,518	80,090	52,663
Total ...	4,545,643	7,116,454	8,895,100	11,427,562	11,123,180	9,577,969

## CLEARED.

New South Wales	1,314,339	1,856,501	2,177,496	3,209,723	3,378,270	2,994,899
Victoria ...	1,692,189	2,038,424	2,617,966	3,233,531	3,285,036	2,755,961
Queensland ...	302,723	440,659	578,561	855,776	871,544	779,017
South Australia ...	825,616	1,365,668	1,772,356	2,343,269	1,751,044	1,490,529
Western Australia	269,256	977,846	1,051,629	1,303,359	1,187,222	1,162,325
Tasmania ...	352,406	433,735	636,944	728,170	652,450	479,182
North'm Territory	*	*	*	66,357	83,798	43,607
Total ...	4,760,529	7,112,833	8,834,952	11,740,185	11,209,364	9,705,520

## TOTAL.

New South Wales	2,931,898	3,887,590	4,633,765	6,528,328	6,942,082	6,099,616
Victoria ...	3,085,007	3,995,324	5,091,737	6,193,082	6,085,139	5,010,595
Queensland ...	570,476	986,128	1,270,915	1,695,828	1,866,917	1,742,948
South Australia ...	1,488,216	2,490,167	3,355,158	4,313,759	3,379,815	2,793,066
Western Australia	506,964	1,951,320	2,020,293	2,682,159	2,492,759	2,535,950
Tasmania ...	723,611	918,758	1,358,184	1,623,716	1,401,944	1,005,044
North'm Territory	*	*	*	130,875	163,888	96,270
Total ...	9,306,172	14,229,287	17,730,052	23,167,747	22,332,544	19,283,489

\* Included with South Australia.

The figures presented in the above table include overseas vessels—largely mail boats—passing from one State to another. This renders the results somewhat unsatisfactory.

In the earlier part of this chapter attention was drawn to the custom in vogue prior to Federation of recording vessels from or to "oversea countries via other Commonwealth States" as *direct* from or to the oversea country. At each port in Australia these vessels were, on the inward voyage (to Australia), entered as from the oversea country, and



cleared to the next Australian port as "interstate"; on the return journey—the outward voyage—they were entered as "interstate," and cleared as for the oversea country. In order to preserve the continuity of the records of the shipping communication of the several States with oversea countries this method has been followed in continuation of the pre-existing practice, excepting that vessels arriving or departing via other Commonwealth States are now so recorded instead of as "direct."

From the above it will be seen that while certain movements of the vessels referred to are included in the interstate shipping, other movements of the same vessels, between the same ports, are not so included.

To ascertain the aggregate movement of shipping between the States during the year 1916-17, including the total interstate movements of oversea vessels, the figures in the following table must be added to those of the preceding one :—

**SHIPPING ENTERED AND CLEARED FROM AND TO OVERSEA COUNTRIES  
VIA OTHER COMMONWEALTH STATES, 1916-17.**

State.	Entered.		Cleared.		Total.		
	Vessels.	Tonnage.	Vessels.	Tonnage.	Vessels.	Tonnage.	
New South Wales ...	348	1,368,969	344	1,312,474	692	2,681,443	
Victoria ...	332	1,204,329	259	941,747	591	2,146,076	
Queensland ...	85	369,757	118	522,496	203	892,253	
South Australia ...	133	485,176	150	513,753	283	998,929	
Western Australia ...	9	35,297	3	9,275	12	44,572	
Tasmania ...	42	114,266	59	184,590	101	298,856	
Northern Territory ...	...	...	...	...	...	...	
Total ...	1916-17	949	3,577,794	933	3,484,335	1,882	7,062,129
	1906 ...	1,045	3,349,036	1,107	3,442,747	2,152	6,791,783

**2. Total Interstate Movement of Shipping.**—From the foregoing it is apparent that the interstate movement of shipping includes two very different elements, viz.:—(i.) Oversea ships moving from State to State, and (ii.) the movement of ships engaged solely in the interstate carrying trade. These two elements are approximately as follows :—

**TOTAL INTERSTATE MOVEMENT OF SHIPPING, 1911 to 1916-17.**

	1911.	1912.	1913.	1914-15.	1915-16.	1916-17.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Oversea vessels moving interstate	10,049,659	10,711,434	11,472,490	8,737,804	8,017,918	7,062,129
Vessels solely interstate ...	6,548,069	6,809,428	8,080,267	8,140,155	7,175,175	6,093,634
Total ...	16,597,728	17,520,862	19,552,757	16,877,959	15,193,093	13,155,763

The following table shews the number and tonnage of vessels which entered and cleared each State during 1916-17, including the coastal movements of oversea vessels :—

### INTERSTATE SHIPPING OF EACH STATE, 1916-17.

State.	Entered.		Cleared.		Total.	
	Vessels.	Tonnage.	Vessels.	Tonnage.	Vessels.	Tonnage.
New South Wales ...	1,955	4,473,686	1,916	4,307,373	3,871	8,781,059
Victoria ...	1,755	3,458,963	1,839	3,697,708	3,594	7,156,671
Queensland ...	610	1,333,688	597	1,301,513	1,207	2,635,201
South Australia ...	672	1,787,713	729	2,004,282	1,401	3,791,995
Western Australia ...	394	1,408,922	313	1,171,600	707	2,580,522
Tasmania ...	770	640,128	776	663,772	1,546	1,303,900
Northern Territory ...	29	52,663	23	43,607	52	96,270
Total ...	1916-17	6,185	13,155,763	6,193	13,189,855	...
	1906 ...	6,586	12,244,136	6,539	12,277,699	...

3. **Vessels Engaged Solely in Interstate Trade.**—The elimination of the element of oversea vessels, included in the interstate shipping returns, cannot be accurately effected ; nevertheless, a close approximation is furnished if it be assumed that vessels *entered* in the several States as from “oversea countries via other Commonwealth States” have really been *cleared* from other States as “interstate,” and further, that the vessels *cleared* to “oversea countries via other Commonwealth States” have likewise been *entered* as “interstate.” Applying this suggestion, and so eliminating all interstate movements of oversea vessels, the number and tonnage of vessels engaged solely in the interstate trade during the years 1911 to 1916-17 will be found to be as follows :—

### NUMBER AND TONNAGE OF VESSELS ENGAGED SOLELY IN INTERSTATE TRADE, 1911 to 1916-17.

Year.	Entered.		Cleared.	
	No.	Tons.	No.	Tons.
1911 ...	4,794	6,548,069	4,811	6,570,019
1912 ...	5,000	6,809,428	4,990	6,809,426
1913 ...	5,174	8,080,267	5,187	8,105,988
1914-15...	5,143	8,140,155	5,142	8,112,005
1915-16...	5,121	7,175,175	5,112	7,139,451
1916-17...	4,803	6,093,634	4,311	6,127,726

This treatment cannot be extended to the individual States, as the records do not disclose the particular relationship of the States concerned.

4. **Interstate and Coastal Services.**—The foundation of the coastal steamship services in Australia dates back to the year 1851, when a regular trade was established between Melbourne and Geelong by the small screw steamer *Express*. Early in the fifties a company was formed in Tasmania with a capital of £40,000 for the purpose of purchasing steamboats, and employing them in the carriage of passengers and goods between Hobart

and Melbourne. This service was commenced in 1852, and was thus the first regular interstate service in Australia. About this time the great influx of population and the increase in commerce, caused chiefly by the gold discoveries, emphasised the desirability of establishing more regular and quicker means of communication between the principal ports of Australia, and in 1862 the regular interstate service between New South Wales and Victoria was inaugurated by the s.s. *You Yangs*, which was put into commission in regular service between Melbourne, Sydney, and Newcastle. In 1875 a company was formed in Adelaide for the purpose of supplying suitable steamers for the requirements of the trade between Adelaide and Melbourne. The first two steamers of the company were named the *South Australian* and the *Victorian*, and were small vessels of only 400 tons burthen. From the start, success attended these enterprises, and the services thus initiated were rapidly extended and their operations broadened. Numerous other companies were formed to cope with the increasing trade between ports in the Commonwealth, and the companies engaged from time to time added to their fleets of steamers by the acquisition of more modern and faster vessels, until at the end of the year 1916 the total net tonnage owned by the twenty-three companies from whom returns have been received amounted to over 204,000 tons. A summary of the various mail services carried on during the year 1916 is given in Section XVIII. of this work.

The subjoined table gives particulars, so far as they are available, of all steamships engaged in regular interstate or coastal services at the end of each of the years 1901 and 1913 to 1917. The figures for 1913 and subsequent years include particulars relating to a number of smaller companies which did not supply returns for 1901, though they were, for the most part, carrying on business in that year.

**PARTICULARS OF STEAMSHIPS ENGAGED IN REGULAR INTERSTATE AND COASTAL SERVICES IN THE COMMONWEALTH, 1901 and 1913 to 1917.**

Particulars.	1901.	1913.	1914.	1915.	1916.	1917.
Number of companies making returns ...	11	23	23	23	23	23
Number of steamships ...	113	190	174	174	169	148
Tonnage { Gross ...	184,574	364,937	340,852	340,443	337,068	241,611
Net ...	114,080	206,340	206,424	205,795	204,357	145,424
Horse-power { Nominal ...	18,237	37,865	35,723	35,787	34,038	26,430
Indicated ...	122,519	321,794	288,856	289,488	283,471	207,150
Number of passengers { 1st class ...	4,617	9,826	8,068	9,557	9,077	5,459
for which licensed to { 2nd class and carry ...	4,490	7,635	8,666	6,808	6,578	5,029
steerage ...	403	649	622	623	606	510
Complement { Masters and officers ...	332	659	527	532	519	415
of Crew { Engineers ...	2,375	5,509	5,493	5,508	5,385	3,910
Crew ...						

5. Lighthouses and Lights on the Coast of the Commonwealth.—See Year Book No. 2.

6. Ports of the Commonwealth.—See Year Book No. 3.

## § 6. Shipwrecks.

The following statement shews the number and tonnage of vessels wrecked, or otherwise lost, on the coast or elsewhere under the jurisdiction of the several States, during the years 1901 and 1909 to 1917 :—

## NUMBER AND TONNAGE OF VESSELS WRECKED,\* 1901 and 1909 to 1917.

Year.	Class of Vessel.	Number and Tonnage of Vessels.										Passengers and Crew.	Lives Lost.
		Under 50 tons.		50 to 500 tons.		500 to 2000 tons.		Over 2000 tons.		Total.			
		No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.		
1901	Steam ...	7	189	5	949	2	2,811	...	...	14	3,949	250	40
	Sailing...	11	217	6	785	5	5,800	...	...	22	6,802	172	10
	Total ...	18	406	11	1,734	7	8,611	...	...	36	10,751	422	50
1909	Steam ...	1	48	3	359	1	1,382	1	2,286	6	4,075	131	40
	Sailing ...	6	163	3	362	2	2,681	...	...	11	3,206	88	6
	Total ...	7	211	6	721	3	4,063	1	2,286	17	7,281	219	46
1910	Steam ...	1	34	5	941	1	958	2	9,307	9	11,240	624	2
	Sailing ...	5	115	2	205	2	3,095	...	...	9	3,415	94	20
	Total ...	6	149	7	1,146	3	4,053	2	9,307	18	14,655	718	22
1911	Steam ...	4	109	5	681	3	5,194	...	...	12	5,984	275	161
	Sailing ...	7	103	4	642	4	5,100	...	...	15	5,845	128	25
	Total ...	11	212	9	1,323	7	10,294	...	...	27	11,829	403	186
1912	Steam ...	1	11	6	866	...	...	1	2,182	8	3,059	227	151
	Sailing ...	4	44	3	407	5	7,836	...	...	12	8,287	111	19
	Total ...	5	55	9	1,273	5	7,836	1	2,182	20	11,346	338	170
1913	Steam ...	1	25	2	237	...	...	...	...	3	262	23	...
	Sailing ...	10	175	5	359	...	...	...	...	15	534	51	7
	Total ...	11	200	7	596	...	...	...	...	18	796	74	7
1914	Steam ...	3	130	4	926	2	2,721	1	3,558	10	7,335	205	18
	Sailing ...	10	184	11	1,124	2	2,297	...	...	23	3,605	160	34
	Total ...	13	314	15	2,050	4	5,018	1	3,558	33†	10,940	365	52
1915	Steam ...	1	38	3	792	1	1,057	...	...	5	1,887	90	1
	Sailing ...	12	245	4	600	...	...	...	...	16	845	82	13
	Total ...	13	283	7	1,392	1	1,057	...	...	21	2,732	172	14
1916	Steam ...	3	107	6	582	...	...	1	2,529	10	3,218	87	6
	Sailing ...	10	240	1	114	...	...	1	3,087	12	3,441	78	19
	Total ...	13	347	7	696	...	...	2	5,616	22	6,659	165	25
1917	Steam ...	4	72	4	551	1	1,015	2	8,763	11	10,401	415	18
	Sailing ...	14	293	4	378	2	1,296	...	...	20	1,967	88	8
	Total ...	18	365	8	929	3	2,311	2	8,763	31	12,368	503	26

\* In some cases the vessels included in the above return were subsequently recovered. † Not including two dredges, particulars of whose tonnage are not available.

### § 7. Control of Commonwealth Shipping.

From the 16th February, 1917, the control of all Commonwealth shipping matters has been under the direction of the Commonwealth Shipping Board, of which Engineer Rear-Admiral Sir William Clarkson, K.B.E., C.M.G., the Controller of Shipping, is chairman.

The policy of the Board is administered by two Central Committees (1) the Overseas Central Committee, and (2) the Interstate Central Committee. The Overseas Committee, which meets in Sydney, with Sir Edward Owen Cox, K.B.E., Deputy-Controller of Oversea Shipping, as chairman, supervises all matters connected with the oversea trade of the Commonwealth, while the Interstate Central Committee, which meets in Melbourne, with the Controller of Shipping (*ex officio*) as chairman, controls the shipping engaged in the coastal trade.

The Controller of Shipping may requisition at schedule rates any vessels which are registered in Australia or engaged in the coasting trade, and may determine which vessels may be made available for the overseas service. The following summary (taken from a Parliamentary Paper, dated 6th June, 1918) shows the number and gross tonnage of vessels which have been diverted from their ordinary service in Australian waters since the beginning of the war, and also the vessels still retained in the interstate trade of the Commonwealth :—

#### VESSELS WITHDRAWN FROM SERVICE IN AUSTRALIAN WATERS.

	No. of Vessels.	Gross Tonnage.
Vessels which have been withdrawn from interstate services since war commenced ... ..	33	141,056
Vessels which have been temporarily withdrawn for special trips ... ..	3	9,479
Oversea vessels which carried cargo and passengers on the coast and have been withdrawn since commencement of war	6	21,559
Vessels which traded from Australia to New Zealand and/or Pacific Islands and have been withdrawn since commencement of war ... ..	15	74,323
Interstate vessels which have been withdrawn since war commenced ... ..	5	5,832
	62	252,249
Vessels now employed in the interstate trade ... ..	67	173,282

### § 8. Commonwealth Government Line of Steamers.

1. **Vessels Purchased.**—In October, 1916, the Right Honourable W. M. Hughes, P.C., Prime Minister, purchased at a total net cost of £2,047,900 the following vessels for the Commonwealth of Australia :—

## COMMONWEALTH VESSELS PURCHASED.

Class.	Old Name.	New Name.	D.W. Capacity.
*A1 ...	"Strathendrick" ...	"Australdale"† ...	7180
" ...	"Strathspey" ...	"Australpeak" ...	7180
" ...	"Strathdee" ...	"Australrange" ...	7180
†B.C. ...	"Strathbeg" ...	"Australmount" ...	7180
*A1 ...	"Strathleven" ...	"Australcrag" ...	7180
†B.C. ...	"Strathesk" ...	"Australbrook" ...	7180
*A1 ...	"Strathavon" ...	"Australford" ...	7180
" ...	"Strathgarry" ...	"Australbush"† ...	7180
" ...	"Strathairly" ...	"Australpool" ...	7180
" ...	"Strathord" ...	"Australglen" ...	7180
" ...	"Daltonhall" ...	"Australstream" ...	5723
" ...	"Kirkoswald" ...	"Australmead" ...	7740
†B.C. ...	"Ardangorm" ...	"Australport" ...	6650
" ...	"Ardanmhor" ...	"Australplain" ...	7180
" ...	"Vermont" ...	"Australfield" ...	6800

\* Classed at Lloyds.

† British Corporation.

‡ Lost through enemy action.

The sailing vessels "John Murray" (1600 tons), "Shandon" (2200 tons) and "Speedway" (1100 tons) were also acquired by the Commonwealth Government, but the former was totally wrecked on Malden Island on the 22nd May, 1918, her crew being saved.

**2. Voyages and Freights.**—The following is a return of voyages made and cargoes carried from Australia by the above vessels from October, 1916, to 1st August, 1918:—During the period from October, 1916, to October, 1917, twenty-three voyages were made, the cargo carried being principally wheat and/or flour to the United Kingdom or France. Included in the above are:—One cargo, copra to United Kingdom, concentrates (zinc), lead, shell; one cargo, wool and wheat to United Kingdom; one cargo, wheat and flour to South Africa, with some general cargo; two cargoes, wheat and flour to America.

From October, 1917, to 1st August, 1918, the number of voyages made was nineteen, of which fourteen were to the United Kingdom, and five were to the Pacific. The cargoes carried were wheat and/or flour.

In cases where any broken or bunker space has been available, such space has been utilised for the carriage of cordage, binder twine, honey, etc.

**3. Vessels Built in America.**—Fourteen vessels (four motors and ten steamers) of approximately 35,000 tons deadweight capacity were ordered to be built for the Commonwealth Government in America. The following is a list of the names of the ships built or being built in America:—(a) *Motors*—"Cethana," "Culburra," "Challamba," "Coolcha,"; (b) *Steamers*—"Bellata," "Bundarra," "Birriwa," "Berringa," "Bethanga," "Benowa," "Babinda," "Balcatta," "Boobyalla," "Boorika."

The "Cethana" arrived in Sydney on the 29th August, 1918.

**4. Control of Enemy Vessels.**—In addition to the above, the management of the Commonwealth Government line of steamers controls seventeen ex-enemy vessels of a deadweight capacity of approximately 130,000 tons.

**5. Managing Staff.**—The principal officers on the managing staff are as follows:—General manager, Mr. H. B. G. Larkin; assistant manager, Mr. G. H. Kneen; head office, Australia House, Strand, London, W.C. 2. Manager for Australia, Mr. E. A. Eva, 447 Collins Street, Melbourne.

## § 9. Commonwealth Shipbuilding Scheme.

1. **Building Programme.**—The present shipbuilding programme of the Commonwealth Government in Australia provides for the construction of 46 vessels as follows :—

### STEEL VESSELS.

Locality.	Number.	Builders.	Type.
Williamstown ...	6	Commonwealth Ship Construction Branch	Steel Cargo Steamers
Walsh Island ...	6	New South Wales Government ...	do.
Cockatoo Island	2	Commonwealth Navy Department ...	do.
Maryborough (Q)	4	Walkers Limited ...	do.
Adelaide ...	4	Poole and Steel ...	do.
Tasmania ...	2	Mersey Shipbuilding Company Ltd. ...	do.

### WOODEN VESSELS.

Sydney ...	6	Hughes, Martin and Washington Ltd....	Auxiliary Schooner
Fremantle ...	6	W.A. Shipbuilding Company ...	do.
Sydney ...	6	Wallace Power Boat Company ...	Auxiliary Barquentine
Sydney ...	6	Kidman and Mayoh ...	do.

The steel vessels, which are on the longitudinal system of framing invented by J. W. Isherwood, are 331 feet in length B.P., 48 feet beam and 26 feet 1 inch moulded depth, with a deadweight capacity of approximately 5500 tons on 21 feet 8 inches draft. Each vessel will be propelled by triple expansion three-cylinder engines (25-inch, 41-inch, 68-inch by 45-inch stroke) which, working at 180 lbs. pressure, will develop I.H.P. of 2300 at 75 revolutions, and will steam about 10½ knots.

The auxiliary schooners are each 232 feet long by 42 feet 8 inches breadth by 24 feet 4½ inches moulded depth, and have each a deadweight capacity of 2300 tons. They will be propelled by two sets of 250 h.p. engines of semi-Diesel pattern, estimated to drive the vessels at about seven knots.

The barquentines each measure 244 feet in length by 44 feet breadth by 24 feet 5 inches moulded depth, and have a deadweight capacity of 2600 tons. The engines will be similar to those to be installed in the schooners.

About 6000 tons of steel plates are required for the first six vessels, three of which are under construction at Walsh Island, two at Williamstown, and one at Cockatoo Island. As the whole of the plates could not be obtained in Australia a certain quantity was ordered in America. The remainder of the material for the vessels, including plates, sectional material, engines, auxiliaries and equipment is, as far as possible, being made or obtained in Australia.

To carry out their contracts Messrs. Walkers Ltd., Poole and Steel, Mersey Shipbuilding Company, Hughes, Martin and Washington, W.A. Shipbuilding Company, and Kidman and Mayoh have established entirely new yards.

Extensions and additions have been carried out at Walsh Island and Williamstown yards. The yard being used by the Wallace Power Boat Company, at Woolwich, is an old shipyard, and has been extended and improved by the company.

The following materials have been ordered in England:—Cables, wire ropes, compass outfit, signal lamps, joiners' hardware, side lights, steering chains, and electric wiring. Australian firms are supplying anchors, windlasses, winches, bakers' ovens, sanitary fittings, steering gear, wireless installations, steel derricks, iron and steel castings, wood blocks, stoves, cooking ranges, ships' boats, iron blocks, electric light installations, timber, canvas outfit, and Manilla hemp ropes.

The keel of the first vessel was laid at Williamstown in May last, and satisfactory progress has been made. Provided that deliveries of plates are satisfactory, it is expected that the first vessel will be launched at Williamstown in January, 1919. Under the contract with the New South Wales Government the six ships are to be delivered in three years. Messrs. Walkers Ltd. and Poole and Steel have contracted to deliver four vessels in three years. Preparations for the building of the wooden vessels are well advanced. The contracts call for the delivery of the twenty-four vessels within two years.

The engines for the two steel vessels being built at Williamstown, and the first vessel at Cockatoo Island, are being constructed at Messrs. Thompson and Company's works at Castlemaine, Victoria. The engines for the vessels being built at Walsh Island will be constructed in the engineering shops on the Island.

Reference to the vessels being built in America for the Commonwealth Government is made in § 8, 3, *ante*.

The whole of the merchant shipbuilding programme is under the Ministerial control of the Hon. A. Poynton, M.P., and under the supervision of Mr. H. W. Curchin (Chief Executive Officer), who arrived in Australia, from England, in December, 1917.



## SECTION XVII.

## ROADS AND RAILWAYS.

## § 1. Roads and Bridges.

1. **Introduction.**—In Year Books No. 1 (pages 541 to 551) and No. 2 (pages 675 to 685), a brief historical account was given of the construction and development of roads in Australia. It is not proposed to repeat that account in the present issue of the Year Book.

2. **Expenditure on Roads and Bridges.**—Figures shewing the total expenditure on roads and bridges in the States are not available. The subjoined statement, however, gives the amounts of total loan expenditures by the State Governments up to the 30th June, 1917:—

**ROADS AND BRIDGES.—TOTAL GOVERNMENT LOAN EXPENDITURE TO THE  
30th JUNE, 1917.**

State . . .	N.S.W.*	Victoria.	Q'land.†	S. Aust.	W. Aust.	Tasmania.‡	All States.
Expenditure	£1,820,546	£1,217,159	£931,775	£1,677,649	£369,401	£4,737,258	£10,753,788

\* Including punts. † Including amounts from surplus revenue on which no interest is payable.  
‡ Including harbours, rivers, and lighthouses.

The following table shews the annual expenditure from loans on roads and bridges by the central Governments in each State during the year 1901-2, and from 1912 to 1917:—

**ROADS AND BRIDGES.—LOAN EXPENDITURE BY STATE GOVERNMENTS,  
1901-2 and 1912-17.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
	£	£	£	£	£	£	£
1901-2 . . .	150,777	47,104	...	185	740	77,536*	276,342
1912-13 . . .	53,263	...	...	...	37,037	183,625†	273,925
1913-14 . . .	23,553	...	...	17,838	...	191,428†	232,819
1914-15 . . .	8,609	274,362	...	37,910	31,974	208,584	561,439
1915-16 . . .	421	495,062	...	102,226	18,450	165,701†	781,860
1916-17 . . .	5,428	252,836	...	54,939	5,878	148,698†	467,779

\* For the calendar year 1902. † See note † to previous table.

The two tables given above shew only a small proportion of the actual expenditure upon roads and bridges in the different States, for the reason that (a) there have been large expenditures from revenue, both by the central Governments and by local authorities, and (b) the State Governments have in many cases voted grants and subsidies on the amount of rates collected, and have issued loans to local authorities either for the express purpose of the construction of roads and bridges or for the general purpose of public works construction. Returns of expenditure, where available, are given below for

each State. Although no revenue is now derived directly from roads and bridges, they are indirectly of great value to the community, forming, next to railways and public lands, the most considerable item of national property.

**3. New South Wales.**—The control of all roads, bridges, and ferries in New South Wales is now regulated by the Local Government Act 1906, which came into force on the 1st January, 1907, and its subsequent amendments in 1908 and 1915. Under the provisions of this Act, the eastern and central divisions of the State are divided into shires and municipalities for the general purposes of local government, for the endowment of which a sum of not less than £150,000 is payable annually out of the consolidated revenue on the basis of a percentage subsidy on the proceeds of the general rates received by the local governing bodies concerned. The control of all roads, bridges, and ferries (except those proclaimed "National" and those in the unincorporated areas of the Western Division) has been transferred from the Roads Department to the respective shires and municipal councils, who are now responsible for their construction and maintenance. Up to December, 1915, 31 miles of roads, 275 bridges, 55 wharves, 99 jetties, and 16 ferries have been proclaimed as "National" works. Power is given to construct new roads, to widen or close existing roads, to make by-laws for the regulation of traffic, etc.; and in the case of the acquisition of land for the purpose of constructing new roads or of widening existing roads, the provisions of the Roads Act 1902 are incorporated. The Minister for Works is empowered to pay subsidies to the local authorities to maintain the roads. The roads leading to and within areas of lands which are made available for closer settlement will be constructed by the Government prior to transfer to the shires, as also will roads required mainly for tourists in districts not likely to produce revenue in rates to the local authorities.

(i.) *Principal Main Roads.* The four principal main roads in New South Wales run in the same direction as, and are roughly contiguous to, the four State-owned main railway lines. (a) *The Southern Road*, 385 miles in length, runs from Sydney to Albury, and before the days of railway construction formed part of the highway over which the interstate traffic between Melbourne and Sydney used to flow. (b) *The South Coast Road*, 250 miles long, runs from Campbelltown along the top of the coast range and across the Illawarra district as far as Bega, from which place it extends as a minor road to the southern limits of the State. (c) *The Western Road*, 513 miles long, runs through Bathurst, Orange, and many other important towns as far as Bourke, on the Darling River. (d) *The Northern Road*, 405 miles in length, runs from Morpeth, near Maitland, as far as Maryland, on the Queensland border.

(ii.) *Length and Classification of Roads and Bridges.* The length of roads in the State (exclusive of 31 miles proclaimed as "National" works) in 1915 was approximately 97,811 miles, of which 10,261 miles were controlled by municipalities, 81,075 by shires, and 6475 miles were in the unincorporated areas of the Western Division. The following table gives particulars for the year 1915 (the latest year for which figures are available), of roads classified according to whether metalled, etc., formed only, cleared only, or natural surface:—

**NEW SOUTH WALES.—APPROXIMATE LENGTH OF ROADS, 1915.**

Classification.	Metalled, Ballasted, Gravelled etc.	Formed only.	Cleared only.	Natural surface.	Total.
	Miles.	Miles.	Miles.	Miles.	Miles.
Metropolitan... ..	1,400	330	246	196	2,172
Country municipalities ... ..	2,676	1,638	1,897	1,878	8,089
Shires ... ..	14,342	10,404	24,731	31,598	81,075
Western Division (unincorporated) ... ..	100	196	2,752	3,427	6,475
<b>Total ... ..</b>	<b>18,518</b>	<b>12,568</b>	<b>29,626</b>	<b>37,099</b>	<b>97,811</b>

(iii.) *Bridges, Culverts, and Ferries.* The more important bridges have been proclaimed under the provisions of the Local Government Act as "National" works (see above), and these, together with the bridges, etc., in the Western Division, remain under the control of, and are maintained by, the Public Works Department. Particulars of bridges, culverts, and ferries in the State in 1915, the latest year for which figures are available, are given in the following table:—

**NEW SOUTH WALES.—BRIDGES, CULVERTS, AND FERRIES, 1915.**

Particulars.	Bridges.		Culverts.		Ferries.
	No.	Length.	No.	Length.	
		ft.		ft.	
"National" works ... ..	275	105,330	...	...	16
Metropolitan... ..	130	6,133	844	78,117	3
Country municipalities ... ..	636	34,493	3,541	99,183	11
Shires ... ..	3,523	211,770	34,668	317,189	96
Western Division (unincorporated) ... ..	93	12,530	153	1,709	...
Total ... ..	4,657	370,256	39,206	496,198	126

(iv.) *Expenditure on Roads and Bridges.* Since the year 1857 the total expenditure by the Roads Department and Road Trusts on roads and bridges is £25,286,664. In this expenditure is included the cost of administering the Department, services for other Departments, and payments on account of punt approaches and similar works incidental to the road traffic of the country. The amount expended from 1857 to the 30th June, 1900, for the next decennium, and for each succeeding financial year up to 1917, is given below. Until recent years, the expenditure on these works increased at a much faster rate than the population.

**NEW SOUTH WALES.—EXPENDITURE BY ROADS DEPARTMENT AND ROAD TRUSTS, 1857 to 1917.**

Period.	Expenditure by Roads Department.	Expenditure by Trustees.	Total.
	£	£	£
1857 to 30th June, 1900 ... ..	18,714,078	1,258,027	19,972,105
1900-09 ... ..	4,605,766	30,664	4,636,430
1910-11 ... ..	125,326	...	125,326
1911-12 ... ..	126,111	...	126,111
1912-13 ... ..	120,719	...	120,719
1913-14 ... ..	73,192	...	73,192
1914-15 ... ..	92,729	...	92,729
1915-16 ... ..	65,928	...	65,928
1916-17 ... ..	74,124	...	74,124
Total ... ..	23,997,973	1,288,691	25,286,664

The expenditure by the Department is now limited to the construction of roads in closer settlement areas and to the construction and maintenance of national bridges and ferries, and of works in the unincorporated areas of the Western Division.

4. **Victoria.**—Under the Local Government Act 1915, the control, construction, and maintenance of all roads, streets, and bridges are in the hands of Municipal Councils, which are empowered to open new roads, and to close, divert, or increase the width of any existing street or road, provided that no new road less than one chain in width may be opened without the consent of the Minister. The councils are also authorised to make and repair streets, lanes, or passages on private property, or to form means of back access to private property, and may compel the owners of such property to pay the cost of so doing. Footways in front of houses or grounds may be kerbed, flagged, paved, or asphalted, and the owners of such houses or grounds must bear half the cost of so doing. The revenue of the councils is derived from rates, which may be either ordinary or special. The councils are empowered to raise loans for the purpose of making or opening new streets and roads, and for diverting, altering, or increasing the width of streets and roads, provided that the amount of such loan must not exceed ten times the average income of the council during the three years immediately preceding from general rates not exceeding 1s. 6d. in the pound of annual value.

(i.) *Country Roads Board.* With the object of improving the main roads of the State, an Act (No. 2415) was passed on 23rd December, 1912, which empowers the Governor-in-Council to appoint a board, to consist of three members.

The duties of the board are to ascertain by survey and investigation what roads are main roads; the nature and extent of the resources of Victoria in metals, minerals, and materials suitable for the purposes of road-making and maintenance, and the most effective and economical methods for dealing with the same, and for supplying and utilising the material in any part of Victoria; the most effective methods of road construction and maintenance; what deviations (if any) in existing roads or what new roads should be made so as to facilitate communication and improve the conditions of traffic; and to record, publish, and make available for general information the results of all such surveys and investigations. The duty of furnishing information that may be required is imposed on the municipal authorities.

The construction of permanent works and the maintenance of main roads are likewise to be carried out by the municipalities to the satisfaction of the board. The total cost of the works, in the first instance, is to be paid by the Treasury, but subsequently half the amount expended on permanent works and maintenance is to be refunded by the municipalities affected.

For the purpose of making permanent works, power is given to the Governor-in-Council to issue stock or debentures to the amount of £400,000 a year for five years, and the principal and interest are a charge upon the Consolidated Revenue of the State. The money so raised is to be placed to the credit of an account to be called "the Country Roads Board Loan Account," which will be debited with all payments made by the Treasurer towards the cost of permanent works. A sinking fund of 1 per cent. per annum on half the amount borrowed is authorised to be paid out of the Consolidated Revenue until half of the amount borrowed is redeemed. An annual payment to the Treasurer of 6 per cent. on the amount due by each municipality in respect of permanent works is provided for, and the cost of maintenance allocated to each municipality must be paid before the 1st July in each year. A special rate, not to exceed 6d. in the £1 on the net annual value of ratable property, to meet the cost of permanent works and maintenance, may be levied in any ward or riding of a municipality as the council may direct. In the

event of default of payment by a municipality, the board may levy a rate to meet the amount owing. All fees and fines paid under the Motor Car Act, all moneys standing to the credit of the Municipal Fees and Fines Trust Fund, all fees paid on the registration or renewal of the registration of traction engines, and all fees received by the Crown after the 30th June, 1912, under the Unused Roads and Water Frontages Act 1903, are to be credited to the Country Roads Board Fund.

Up to the 30th June, 1917, there were 6500 miles of declared main roads, agreed to by the councils, and gazetted. The total amount expended during 1916-17 for permanent works was £226,603, and for maintenance work £130,537, a total of £357,140, affecting 147 municipalities. The net receipts for the year were £96,707, of which amount the chief items were motor registration fees, £44,746, unused roads and water frontages license fees, £24,353, and contributions by municipalities for permanent works, £23,527.

(ii.) *General and Local Government Expenditure.* The gross amount expended directly by the State Government of Victoria on roads and bridges was £8,766,192 up to the end of June, 1917. The annual expenditure from ordinary revenue by municipalities is not returned separately, but is included in Public Works Construction and Maintenance (see Section xxvi., *Local Government*). The subjoined table shows the cost from general revenue of municipalities of private streets, roads, etc., and also shows the amounts of municipal loan expenditure in 1901 and from 1913 to 1917:—

**VICTORIA.—EXPENDITURE ON ROADS AND BRIDGES, 1901 and 1913 to 1917.**

Financial Year.*	Annual Expenditure by State Government.	Municipal Loan Expenditure.		Formation of Private Roads, Streets, Lanes, etc.†	
		Cities, Towns, and Boroughs.	Shires.	Cities, Towns, and Boroughs.	Shires.
	£	£	£	£	£
1901 ... ..	72,890	16,844	12,928	18,829	4,521
1913 ... ..	73,374	49,743	30,758	51,034	5,566
1914 ... ..	56,649	57,411	23,749	59,093	11,372
1915 ... ..	47,898	103,124	40,129	53,365	8,647
1916 ... ..	25,651	92,198	44,945	64,481	3,543
1917 ... ..	16,514	†	†	†	†

\* The financial years of Melbourne and Geelong end on the 31st December and the 31st August respectively; those of all other municipalities on the 30th September.

† Including the cost of flagging, asphaltting footpaths, etc., but exclusive of loan expenditure.

‡ Not available.

5. *Queensland.*—In Queensland the construction and maintenance of public roads are controlled under a system of local self-government, for the purposes of which the whole State is divided into (a) cities, (b) towns and (c) shires. The duties, rights, and responsibilities of the local authorities with regard to roads, streets, and bridges are regulated by the Local Authorities Act of 1902 and subsequent amendments. The councils are invested with full powers to open, close, divert, or widen streets, roads, and bridges, and to make by-laws for the regulation of traffic, etc. The members of the councils are elected by the ratepayers, and with the aid of executive officers they undertake the supervision and control of all necessary constructions and improvements of roads and bridges within their district. The rates which the councils are empowered to levy are supplemented by Government grants. Separate returns as to the expenditure by towns and shires on roads and bridges are not available, the amounts being included in the returns of expenditure on public works, particulars as to which expenditure may be found in Section xxvi. *Local Government*, hereinafter.

6. **South Australia.**—Of the several Australian States, South Australia has by far the largest unincorporated area, no less than 88 per cent. of the whole area of the State being in this condition. This area is, however, very sparsely populated and much of it is entirely unoccupied. The remainder of the State is for purposes of local government under the control of Municipal Corporations and District Councils. Under the provisions of the District Councils Act 1914, the Municipal Corporations Acts 1890 to 1915, and of the Roads Acts 1884 to 1915, the councils are invested with full powers as to the opening and making of new streets and roads, and the diverting, altering, or increasing the width of existing roads; as to raising, lowering, or altering the ground or soil of any street or road; and as to the construction, purchase, and management of bridges, culverts, ferries, and jetties.

(i.) *Main Roads and District Roads.* All the roads in each district are classified either as main roads or as district roads. Both classes of roads are under the direct control either of Municipal Corporations or of District Councils, but in the case of main roads the expenditure on construction and maintenance is chiefly provided for by Government grants, which are paid into a Government grants account, while the expenditure on district roads is paid for out of general rates, and out of subsidies on the amount of such rates granted by the central Government. Under the Main Roads Act 1915, a number of roads were declared to be main roads.

The total estimated length of streets and roads in South Australia up to the 30th June, 1917, was as follows:—

**SOUTH AUSTRALIA.—ESTIMATED LENGTH OF ROADS AND STREETS, 1917.**

Particulars.				Woodblocked.	Macadamised.	Other.	Total.
Miles	...	...	...	10	10,465	33,261	43,736

(ii.) *Expenditure by Corporations on Main and District Roads.* The following table shows the expenditure by municipal corporations on both main and district roads during 1901, and each year from 1912 to 1917 inclusive:—

**SOUTH AUSTRALIA.—EXPENDITURE BY CORPORATIONS ON STREETS, ROADS AND BRIDGES, 1901 and 1912 to 1917.**

Year.*	District Roads.		Main Roads Fund.			
	Expenditure.		Receipts.		Expenditure.	
	Con- struction.	Main- tenance.	From Main Road Grants.	Total.	Con- struction.	Main- tenance.
	£	£	£	£	£	£
1901 ...	4,906	50,628	7,403	8,738	159	7,745
1912 ...	10,907	59,609	11,477	11,865	322	12,590
1913 ...	31,797	89,830	11,817	13,128	463	13,142
1914 ...	8,909	95,970	12,573	13,516	361	11,949
1915 ...	31,732	74,887	12,084	12,820	26	11,502
1916 ...	25,483	73,118	9,669	12,098	88	13,679
1917 ...	15,952	80,106	14,299	15,787	619	13,073

\* Up to and including the year 1903 the financial year ended on the 31st December, but after that date ends on the 30th November.

(iii.) *Expenditure of District Councils on Main and District Roads.* The following table gives similar information with respect to main and district roads under the control of District Councils:—

**SOUTH AUSTRALIA.—EXPENDITURE BY DISTRICT COUNCILS ON STREETS, ROADS AND BRIDGES, 1901 and 1912 to 1917.**

Year ended 30th June.	District Roads.		Main Roads Fund.			
	Expenditure.		Receipts.		Expenditure.	
	Con- struction.	Main- tenance.	From Main Road Grants	Total.	Con- struction.	Main- tenance.
	£	£	£	£	£	£
1901 ... ..	18,026	47,379	72,980	100,077	11,861	67,487
1912 ... ..	54,342	68,108	119,331	123,154	20,414	102,759
1913 ... ..	56,128	76,880	106,482	108,489	14,915	96,673
1914 ... ..	48,133	80,181	124,528	130,299	18,538	97,599
1915 ... ..	51,625	85,119	114,722	114,781	15,571	102,679
1916 ... ..	41,288	79,515	83,264	84,738	12,493	61,172
1917 ... ..	47,337	79,377	109,044	111,567	18,809	72,644

**7. Western Australia.**—In Western Australia the construction, maintenance, and management of roads and bridges throughout the State are under the control of Municipalities, constituted by the Municipal Corporation Acts 1906-1915, and District Road Boards, constituted by the Roads Acts 1911-1915.

(i.) *District Roads and Bridges.* Under the provisions of the Roads Acts any part of the State, not within a municipality, may be constituted by the Governor-in-Council into a Road District, under the control of a board of not less than five nor more than eleven members elected by the ratepayers. The board is invested with full powers for controlling and managing all roads and bridges within the district, and is empowered to make by-laws for the general regulation of traffic, to control the weight of engines and machines permitted to cross any bridge or culvert, to regulate the speed limits of vehicles, lights to be carried by vehicles, the lighting of streets and roads, and the licensing of bicycles and motor cars. A District Road Board may not, however, construct any road or street less than sixty-six feet wide, nor any bridge or culvert at a greater cost than £100, without the consent of the Minister. The construction of the more important bridges and culverts is generally carried out by the Government, the work, after completion, being handed over to the Road Board for maintenance. In case of land being required for the purpose of constructing a new street or road, or for widening an existing street or road, the provisions of the Public Works Act of 1902 are incorporated in the Roads Act. A board may levy general rates within its district not exceeding two shillings and sixpence nor less than ninepence in the £ on the annual ratable value, and, if valued on the basis of unimproved values of lands, the general rate must not be over threepence nor under one penny in the £ on the capital unimproved value. Boards are also empowered to raise loans for works or undertakings or to liquidate existing loans, but the amount of such loans must not be greater than seven times the average ordinary revenue of the board. In the case, however, of boards already indebted, borrowing power to the extent of ten times the said average is given, less the amount of existing loan indebtedness at time of borrowing. For the purpose of paying the interest on money borrowed a board may levy a special rate. District Road Boards may also exercise the powers of Drainage Boards under the provisions of the Land Drainage Act of 1900.

(ii.) *Municipal Streets, Roads, and Bridges.* As regards roads, streets, and bridges within municipalities, these are under the control of local authorities elected under the provisions of the Municipal Corporations Acts 1906-15. The municipal councils are invested with full powers for making, maintaining, and managing all streets, roads, and bridges within the municipal area, and may request the Governor to declare any such land reserved, used, or by purchase or exchange acquired for a street or way, to be a public highway, and on such request the Governor may, by notice in the *Gazette*, proclaim such highway absolutely dedicated to the public.

(iii.) *Length of Roads, Number of Bridges, and Expenditure on Roads and Bridges.* The following table gives particulars of the operations of the Road Boards since the 1st January, 1912 :—

**WESTERN AUSTRALIA.—PARTICULARS OF ROADS UNDER CONTROL OF DISTRICT ROAD BOARDS, 1912 to 1916.**

Year ended the 30th June.	Area.	Revenue.				Expenditure.	Length of Cleared Roads.†				No. of Bridges and Culverts.	
		From Rates.	From Grants and Subsidies.	From other Sources.	Total.		Cleared only.	Cleared and Formed.	Mettled or otherwise Constructed.	Total.	Bridges.	Culverts.
	Sq. m.	£	£	£	£		Miles.	Miles.	Miles.	Miles.	No.	No.
1912 ...	975,809	70,397	64,774	36,497	171,668	196,576	16,484	4,555	3,432	24,471†	719†	5,908†
1913 ...	975,815	80,551	60,687	29,770	171,008	184,587	19,236	4,429	3,651	27,316†	721‡	6,157‡
1914 ...	975,815	93,700	63,668	46,031	203,399	187,800	19,921	4,626	3,804	28,351‡	731*	6,450*
1915 ...	975,815	88,569	27,753	47,571	163,893	193,033	19,641	4,674	4,039	28,354†	761	6,649
1916 ...	975,827	104,345	24,397	38,820	167,562	166,340	19,258	5,363	4,216	28,837	760	6,907

\* Exclusive of two Boards which have not supplied the information. † Exclusive of five Boards. ‡ Exclusive of four Boards. § Exclusive of three Boards.  
 †† Approximate only.

The following table gives similar information with reference to roads controlled by municipalities under the Municipal Institutions Act 1900 and the Municipal Corporations Act 1906 :—

**WESTERN AUSTRALIA.—PARTICULARS OF STREETS, ROADS, AND BRIDGES UNDER THE CONTROL OF MUNICIPALITIES, 1901 and 1912 to 1916.**

Year ended the 31st October.	No. of Municipalities.	Length of Streets and Roads.†					Revenue.		Expenditure.		
		Paved, M't'll'd or Gr'v'll'd	Form'd only.	Cleard only.	Not Cleard	Total.	From Rates.	From Grants.	Works and Impr'v-ments.	Street Light'g and Wat'r'g	
		Miles.	Miles.	Miles.	Miles.	Miles.	£	£	£	£	
1901 ...	42	195	30	149	137	511	78,021	66,850	111,256	15,969	
1912 ...	38*	528	103	278	312	1,221	148,538	25,902	78,576	27,322	
1913 ...	33	544	95	267	299	1,205	153,966	19,382	159,445	26,089	
1914 ...	33	550	95	258	290	1,193	153,686	13,142	223,098	19,056	
1915 ...	31	570	92	254	279	1,195	170,675	10,309	190,739	24,959	
1916 ...	30	559	88	253	238	1,138	166,617	9,462	120,411	24,952	

\* Including also particulars of four municipalities which were dissolved during the year.  
 † Approximate only.

8. *Tasmania.*—In 1906 all the existing Road Trusts and Main Road Boards were abolished by the Local Government Act, which provided that the councils of all municipalities constituted under the Act should exercise all powers conferred upon, and should be liable to all the obligations imposed upon Road District Trusts and Main Road Boards by the Roads Act of 1884. The whole State is divided into municipal districts, 49 rural and 2 city, each rural district being under the control of a warden and councillors.

(i.) *Mileage of Roads and Number of Bridges.* The following table gives particulars for the year 1916 as to length of roads and number of bridges and culverts under the control of the municipalities :—



**TASMANIA.—ROADS AND BRIDGES IN MUNICIPALITIES, 1916.**

Roads.			Bridges.	Culverts.
Macadamised or Gravelled.	Other.	Total.		
Miles. 5,670	Miles. 5,508	Miles. 11,178	No. 1,120*	No. 19,702*

\* Last available figures.

(ii.) *Revenue and Expenditure.* The following table gives particulars for the year 1916 of the revenue and expenditure of municipal councils in respect of roads and bridges:—

**TASMANIA.—ROADS AND BRIDGES, REVENUE AND EXPENDITURE, 1916.**

Revenue.				Expenditure. †
From Government.	Rates.	All other.*	Total.	
£ 12,753	£ 56,676	£ 210,163	£ 279,592	£ ‡342,873

\* Including current receipts from loans. † Municipal "Works and Services."

‡ Including £60,807 on trams.

**§ 2. Railways.****(A) General.**

1. *Introduction.*—In the issues of the Commonwealth Year Book, Nos. 1-7, the statistics of all Government railway systems were treated under the head of *Government Railways*. In the following issues, Nos. 8, 9 and 10, the greater part of those statistics relating to State-owned lines was dealt with separately from those under the control of the Commonwealth Government. This arrangement is continued in the present issue. The State railways are referred to throughout as "State" and the Commonwealth railways as "Federal" railways. There is, however, a summary of the working of the Federal and States' railways in part (E) of the present section.

2. *Railway Statistics.*—In some of the earlier issues of the Year Book will be found a condensation of the report issued in 1909 by the Commonwealth Statistician to the Minister for Home Affairs on the subject of *The Desirability of Improved Statistics of Government Railways in Australia* (see Year Book No. 7, page 598).

3. *Railway Communication in the Commonwealth.*—An account of the progress in railway construction in Australia since the opening of the first line in 1854 will be found in Year Book No. 6, p. 681. In the eastern, south-eastern, and southern parts of Australia there now exists a considerable network of railway lines converging from the various agricultural, pastoral and mining districts towards the principal ports, which are themselves connected by systems of lines roughly running parallel to the coast. These are shewn on the map on page 653. In the east, lines radiating from Townsville, Rockhampton, Brisbane, and Sydney extend inland in various directions for distances ranging up to over 600 miles; in the south-east there are numerous lines, those in Victoria converging towards Melbourne, while others in New South Wales have their terminus in Sydney; in the south there are four main lines,

with numerous branches, running from Melbourne, while from Adelaide one main line, with several branches to the coastal towns, runs inland in a northerly direction for a distance of nearly 700 miles, and another line runs in a south-easterly direction to various ports, meeting the main line from Melbourne on the border of South Australia and Victoria near Serviceton. The South Australian and Victorian railway systems also meet on the border at two other points, one near Pinnaroo, and the other at Rennick near Mount Gambier. By the opening, in 1917, of the Trans-Australian railway from Port Augusta to Kalgoorlie, through communication by rail has been established between the eastern States and the Western Australian railway system. The main interstate line (indicated by a heavier line in the map), which permits of direct communication between the five capital cities—Brisbane, Sydney, Melbourne, Adelaide, and Perth—covers a distance from end to end of 3471.25 miles, or 3476.27 miles via Newcastle. This journey occupies six days, three hours and forty minutes. In the opposite direction the journey occupies five days, twenty-three hours and forty minutes. Both of these are the times taken over all.

In the following tables particulars are given of the gauges of lines, changing stations and duration of stops thereat, arrival and departure times, distances and average speeds on the journey from Brisbane to Perth, and vice versa :—

## BRISBANE TO PERTH.

Gauge of Line.	Terminal or Changing Stations.	Times.		Day on Journey. †	Actual Time.	Duration of stops at Changing Stations.	Intermediate Distance.	Total Distance from Brisbane.	Average Speed.*
		arr.	dep.						
ft. in.					h. m.	h. m.	miles.	miles.	m.p.h.
3 6	Brisbane ...	—	8.5 a.m.	Monday ...	—	—	—	—	—
4 8½	Wallangarra ...	5.55 p.m.	6.17 p.m.	"	9 50	0 22	223.46	223.46	22.72
4 8½	Sydney ...	11.25 a.m.	7.25 p.m.	Tuesday ...	17 8	8 00	1497.38	720.84	29.03
4 8½	Albury ...	7.23 a.m.	7.47 a.m.	Wednesday ...	11 58	0 24	398.11	1118.95	33.27
5 3	Melbourne ...	12.51 p.m.	4.30 p.m.	"	5 4	3 39	190.50	1309.45	37.60
5 3	Adelaide ...	9.55 a.m.	10.45 a.m.	Thursday	17 55	0 50	483.05	1792.50	26.96
5 3	Terowie ...	3.36 p.m.	4.0 p.m.	"	4 51	0 24	139.75	1932.25	28.81
3 6	Port Augusta ...	9.55 p.m.	10.30 p.m.	"	5 55	0 35	119.50	2051.75	20.20
4 8½	Kalgoorlie ...	10.20 a.m.	5.40 p.m.	Saturday	37 20	7 20	1051.30	3103.05	28.16
3 6	Perth ...	9.45 a.m.	—	Sunday ...	16 5	—	373.22	3476.27	23.21
				Total ...	126 6	21 34	3476.27	—	27.57

## PERTH TO BRISBANE.

Gauge of Line.	Terminal or Changing Stations.	Times.		Day on Journey. †	Actual Time.	Duration of stops at Changing Stations.	Intermediate Distance.	Total Distance from Perth.	Average Speed.*
		arr.	dep.						
ft. in.					h. m.	h. m.	miles.	miles.	m.p.h.
3 6	Perth ...	—	5.0 p.m.	Monday ...	—	—	—	—	—
4 8½	Kalgoorlie ...	9.15 a.m.	10.0 a.m.	Tuesday ...	16 15	0 45	373.22	373.22	22.97
4 8½	Port Augusta ...	1.0 a.m.	4.55 a.m.	Thursday	37 30	3 55	1,051.30	1424.52	28.03
3 6	Terowie ...	10.50 a.m.	11.15 a.m.	"	5 55	0 25	119.50	1544.02	20.20
5 3	Adelaide ...	3.37 p.m.	4.30 p.m.	"	4 22	0 53	139.75	1683.77	32.00
5 3	Melbourne ...	9.59 p.m.	5.0 p.m.	Friday ...	16 59	7 1	483.05	2166.82	28.44
5 3	Albury ...	10.21 p.m.	10.40 p.m.	"	5 21	0 19	190.50	2357.32	35.61
4 8½	Sydney ...	10.45 a.m.	3.30 p.m.	Saturday	12 5	4 45	398.11	2755.43	32.95
4 8½	Wallangarra ...	9.5 a.m.	9.30 a.m.	Sunday ...	17 35	0 25	1497.38	3252.81	28.29
3 6	Brisbane ...	6.40 p.m.	—	"	9 10	—	223.46	3476.27	24.38
				Total ...	125 12	18 28	3,476.27	—	27.77

\* Inclusive of stops between changing stations. † Runs via Newcastle. ‡ The days here given are for the purposes of time table interpretation. They are not the only days on which the service is provided.

The average speed inclusive of all stops is 23.54 miles per hour on the journey from Brisbane to Perth, and 24.20 miles per hour on the return journey.

The longest railway journey which can be undertaken in Australia, on one continuous line of railway, is from Longreach in Queensland to Meekatharra in Western Australia, a total distance of 4756.76 miles.

In Western Australia there is a connected system of main or trunk lines between the ports of the State and the agricultural, pastoral, and mining districts, while there are also two short lines, one on the north-west, the other on the south coast, which are unconnected with the main system. In the northern parts of Queensland and in the Northern Territory there are also several disconnected lines running inland from the more important ports. In Tasmania the principal towns are connected by a system of lines, and there are also, more especially in the western districts, several lines which have been constructed for the purpose of opening up mining districts.

**4. Non-conformity of Gauge.**—With but few exceptions, all the railway lines in the Commonwealth open for general traffic are now owned and managed by the respective States in whose territory they run, or by the Commonwealth Government, but, unfortunately for the purpose of interstate traffic, the construction of the various systems in different parts of Australia has proceeded without uniformity of gauge. In 1846 Mr. Gladstone, then Colonial Secretary, recommended in a despatch to the Governor of New South Wales that the 4-ft. 8½-in. gauge should be adopted. In 1850, however, the engineer to the Sydney Railroad and Tramway Company strongly advocated the adoption of the 5-ft. 3-in. gauge, and in 1852 an Act was passed making it compulsory that all railways in New South Wales should be constructed to the wider gauge, the Governors of Victoria and South Australia being duly advised of the step that had been taken. In 1852, however, the company mentioned having changed its engineer, also changed its views as to the gauge question, and in the following year succeeded in obtaining the repeal of the Act of 1852 and in securing the passing of another, under the provisions of which the narrower gauge was made imperative. This step was taken without the concurrence of the other States concerned, and a considerable amount of ill-feeling arose, especially in Victoria, where two private companies had already placed large orders for rolling stock to be constructed to the broad gauge originally chosen. The result was that it was decided in Victoria to adhere to the 5-ft. 3-in. gauge as the standard gauge for the State, while the Sydney Railroad and Tramway Company proceeded with the construction of its lines to the 4-ft. 8½-in. gauge, and these two gauges have since been adhered to as the standard gauges of the respective States. The Queensland Government had, at the outset, adopted a gauge of 3-ft. 6-in. as being best suited to the requirements of the colony, and has since adhered to that gauge throughout the State, so that all goods requiring conveyance into New South Wales or *vice versa* have to be transhipped at the boundary between the two States. In June, 1914, however, the Queensland Government purchased two short lengths of line laid on a 2-ft. gauge. In South Australia the broad gauge of Victoria was at first adopted, and the part of the interstate line between Adelaide and the Victorian boundary was constructed to that gauge, so that the line from Melbourne to Adelaide has a uniform gauge throughout. In 1870, however, on the grounds of economy, the 3-ft. 6-in. gauge was introduced and many of the lines in South Australia have been constructed with that gauge. At the 30th June, 1917, of the 2220.66 miles of State Government railways in that State 1209.59 miles were of 3-ft. 6-in. gauge, exclusive of 477.96 miles of the same gauge from Port Augusta to Oodnadatta belonging to the Federal Government. In the Northern Territory the line from Darwin to Katherine, 199.56 miles in length, is of 3-ft. 6-in. gauge. In Western Australia and Tasmania the 3-ft. 6-in. gauge was also adopted. It was recognised in both these States that the construction of railways was essential to their proper development, but as their financial resources would not bear a heavy initial

expenditure in connection with the establishment of railway lines, it was decided to adopt the narrow gauge. In Victoria, short lengths of light railways have been constructed in recent years to a gauge of 2-ft. 6-in., whilst in Tasmania short lengths have been laid down to a 2-ft. gauge.

5. **Interstate Communication.**—Until the railway systems of the eastern states were connected at the common boundaries, the inconvenience of non-conformity of gauge was not felt. Since then, however, the necessary transshipments of both passengers and goods have been a source of trouble, delay, and expense. On the 14th June, 1883, a railway bridge over the River Murray at Wodonga was opened for traffic, and railway communication was then established between Melbourne and Sydney. On the 19th January, 1887, the last section of the Victorian line to Serviceton, on the South Australian border, was completed, and a junction was thus effected with the South Australian line to Adelaide. On the 16th January, 1888, a junction was effected between the New South Wales and Queensland lines at Wallangarra, but there was still a break in the line from Sydney at the Hawkesbury River, thirty-six miles from Sydney. This last link was, however, completed on the 1st May, 1889, by the opening of the Hawkesbury River bridge, 2900 feet in length, and railway communication was thus established between the four capital cities, Brisbane, Sydney, Melbourne, and Adelaide.

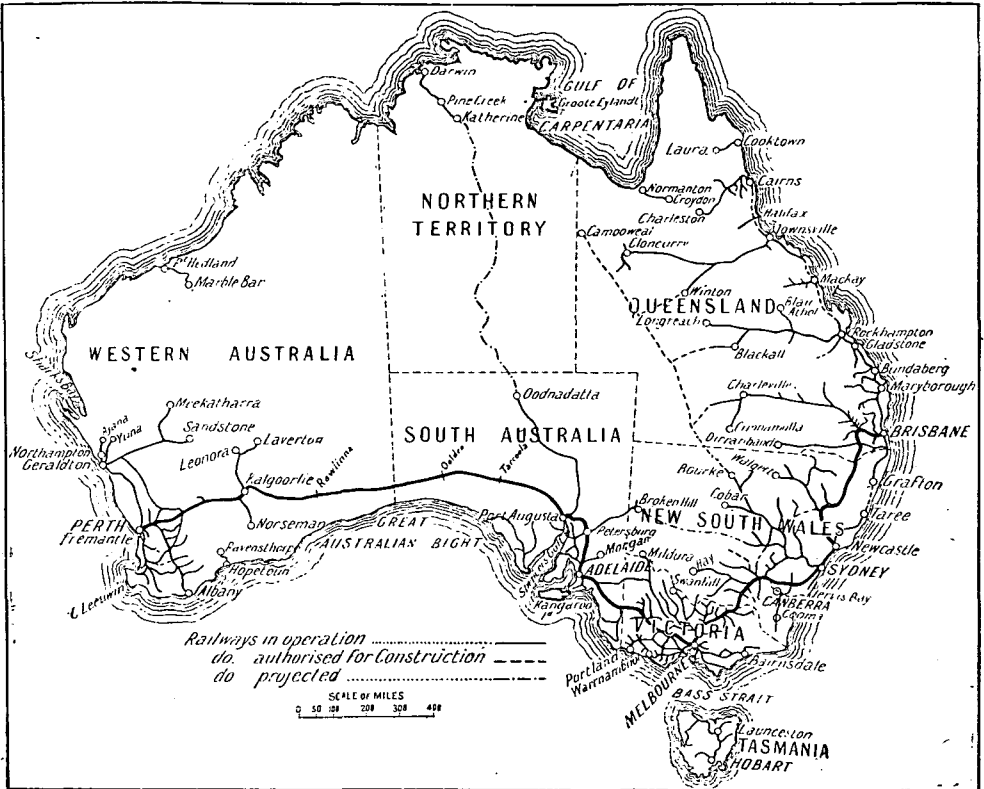
By the opening of the Trans-Australian railway, to which reference has already been made, Western Australia is now linked to the other States, and an unbroken line of communication established from one side of the continent to the other. The construction, moreover, of lines recently decided upon, connecting Victoria with the Riverina district in New South Wales and with the wheat-growing districts of South Australia, will undoubtedly facilitate interstate exchange and will allow the produce of inland areas to find its natural outlet at the nearest port.

6. **Unification of Gauge.**—The development of the railway systems of the Commonwealth has shewn that the adoption of different gauges on the main lines in the several States was a serious error. As already mentioned, the extra cost, delay, and inconvenience incurred by the necessity of transferring through-passengers and goods at places where there are breaks of gauge, are becoming more serious as the volume of business increases. As an indication of the extra cost thus involved, the junction charges on interstate traffic between New South Wales and Victoria range from 1s. 6d. to 2s. 6d. per ton.

Although the cost of alteration to a uniform gauge would be great, many propositions have from time to time been put forward with the object of securing such a gauge, and attention has been drawn to the importance of the unification of gauges before further expenditure on railway construction is incurred by the States. The problem is, however, one which is by no means easy of solution, and the difficulties are increased by the introduction of what may be called questions of local or State policy.

The first question that naturally arises in considering the problem is as to which gauge should be adopted as the universal gauge of the Commonwealth. As regards State Government railways, the 4-ft. 8½-in. gauge has a mileage of 4397, all in New South Wales; Victoria and South Australia have a combined mileage of 5012 of 5-ft. 3-in. gauge; while New South Wales, Queensland, South Australia, Western Australia have together 9859 miles of 3-ft. 6-in. gauge. In addition, the Commonwealth Government has (i.) of 4-ft. 8½-in. gauge 5 miles in New South Wales, 597½ miles in South Australia, and 454 miles in Western Australia, and (ii.) of 3-ft. 6-in. gauge 478 miles in South Australia, and 199½ miles in the Northern Territory. By far the greater part of the mileage of private railways open for general traffic has also been constructed to the 3-ft. 6-in. gauge. The mere question of preponderance of mileage, therefore, indicates the 3-ft. 6-in. gauge for adoption. But this question is obviously subordinate to those involving engineering and economic considerations. Thus, the relative efficiency from the widest

THE GOVERNMENT RAILWAY SYSTEMS OF THE COMMONWEALTH  
AS AT 30TH JUNE, 1917. \*



EXPLANATION OF MAP.—The continuous lines denote the existing railway lines of Australia, the heavier lines being the main routes.

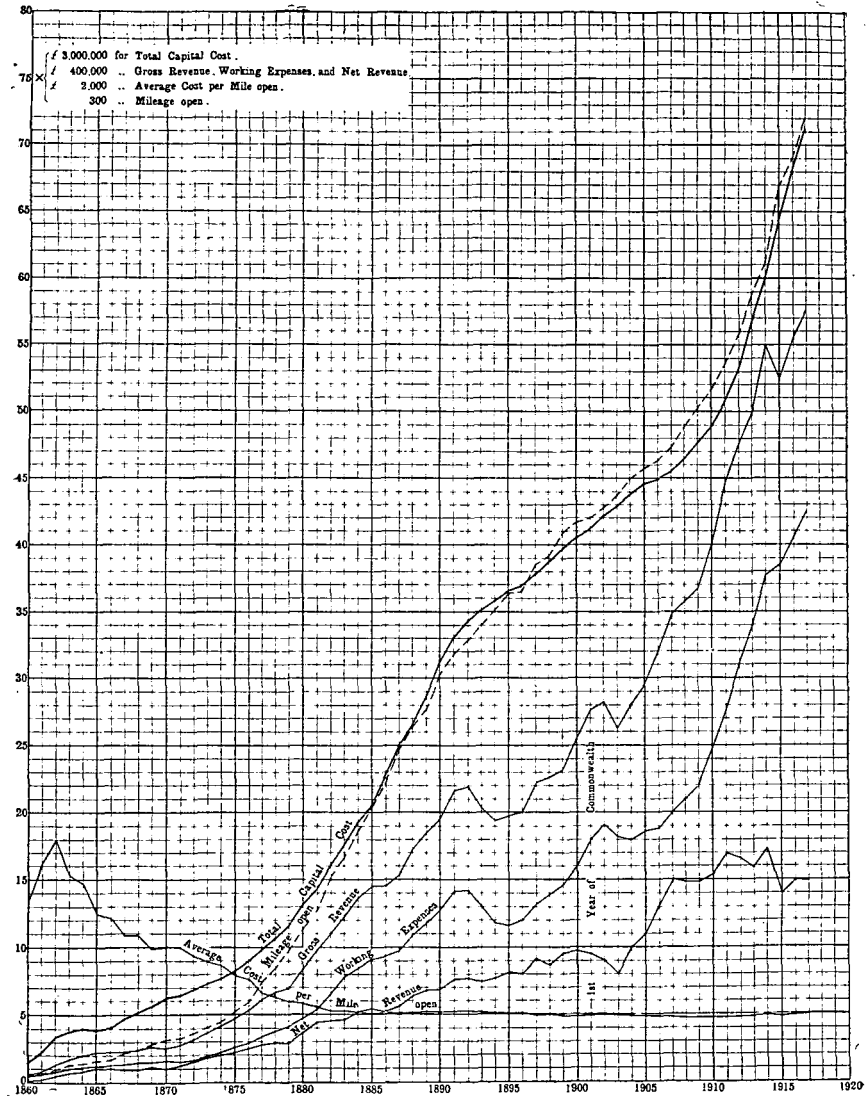
Of the two transcontinental lines, viz., one joining the railways of South and Western Australia, thus connecting continuously by railway Queensland, New South Wales, Victoria, South Australia, and Western Australia, and one connecting Oodnadatta in South Australia with Katherine in the Northern Territory, the former has been constructed, and is shewn ————; while the latter, the construction of which is to be deferred for the present, is shewn — · — · —.

LIST OF PRINCIPAL SECTIONS OF RAILWAYS.

	Miles.		Miles.		Miles.	
Townsville to Winton	368	Sydney to Nimmitabel	291	Adelaide to Broken Hill	334½	
Townsville to Selwyn	552	„ „ Melb/rue (17½ hrs.)	588½	„ „ Oodnadatta	688	
Rockhampton to Longreach	428	Adelaide to Melb. (17 hrs.)	482½	Perth to Laverton	566	
Brisbane to Cunnamulla	604	Melbourne to Merbein	358½	„ „ Meekatharra	600	
Brisbane to Sydney (27½ hrs.)	711½	„ „ Swan Hill	214½	„ „ Albany	341	
Newcastle to Inverell	410	„ „ S. Aust. border		Hobart to Launceston	133	
Sydney to Bourke	511	via Murrayville	369½			
„ „ Hay	466					

\* To 17th October, 1917, in the case of the Trans-Australian Railway from Port Augusta to Kalgoorlie.

GRAPH SHEWING THE FINANCIAL POSITION OF THE GOVERNMENT RAILWAYS OF THE COMMONWEALTH, 1860 TO 1917.



(See page 699.)

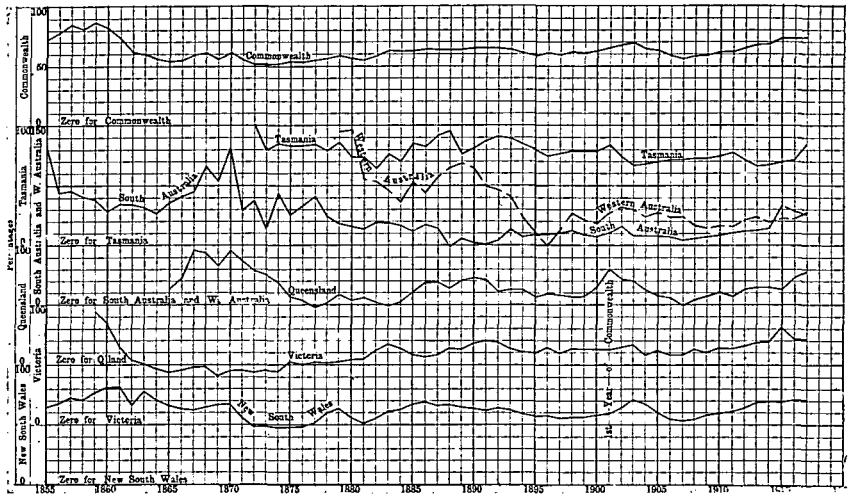
EXPLANATION OF GRAPH.—In the above diagram the base of each small square represents throughout one year. The significance of the vertical height of each square varies, however, according to the nature of the several curves.

In the heavy curve denoting the total capital cost of the railways of the Commonwealth, the vertical side of each square denotes £3,000,000.

In the three lighter curves, representing (i.) gross revenue, (ii.) working expenses, and (iii.) net revenue, the vertical height of each small square denotes £400,000. For the curve of average cost per mile open, the vertical side of the small square denotes £2000. The mileage open is shown by a dotted curve, the vertical side of each square representing 300 miles.

For the curves shewing the percentage of working expenses to gross revenue, and the percentage of net revenue to capital cost, see graphs on pages 655 and 656 respectively.

GRAPH SHEWING PERCENTAGES OF WORKING EXPENSES TO GROSS REVENUE FOR GOVERNMENT RAILWAYS FOR STATES AND COMMONWEALTH, 1855 TO 1917.

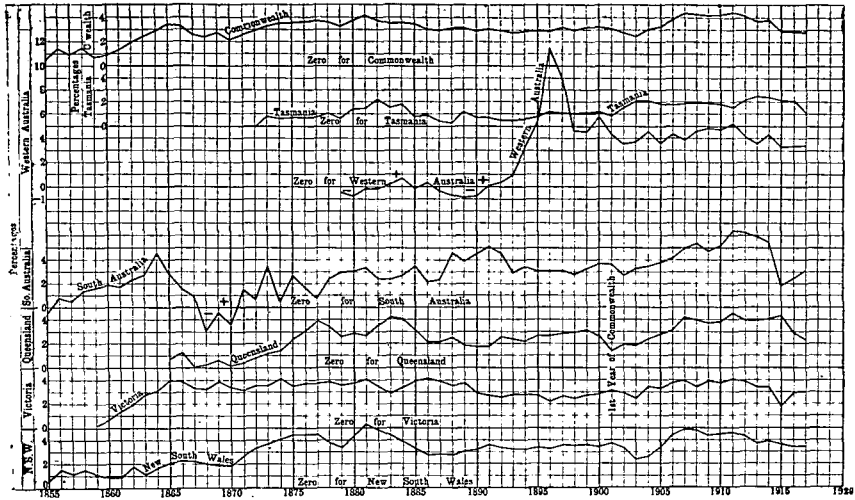


(See page 684.)

**EXPLANATION OF GRAPH.**—In the above diagram the base of each small square represents throughout one year. The vertical side of a small square denotes throughout 10 per cent., the heavy zero lines being different for each State and the Commonwealth, with, however, one exception, viz., that the zero line for South Australia and Western Australia is identical.

The curve for Victoria commences in 1859; that for Queensland in 1865; that for Tasmania in 1872; and that for Western Australia in 1879, these being the years in which the Government Railway systems of the several States were inaugurated.

GRAPH SHEWING PERCENTAGES OF NET REVENUE TO CAPITAL COST OF GOVERNMENT RAILWAYS FOR STATES AND COMMONWEALTH, 1855 to 1917.



(See page 686.)

**EXPLANATION OF GRAPH.**—In the above diagram the base of each small square represents throughout one year. The vertical side of a small square denotes 1 per cent., the thick zero lines, however, for each State and for the Commonwealth being different. This was necessary to avoid confusion of the curves.

Where the curve for any State falls below that State's zero line, loss is indicated, the working expenses having exceeded the gross revenue.

The curve for Victoria commences in 1859; that for Queensland in 1865; that for Tasmania in 1872; and that for Western Australia in 1879, these being the years in which the Government railway systems of the several States were inaugurated.



point of view, the relative costs of alterations of the permanent way and rolling stock, of carrying capacity and speed, that is to say, questions of a technical nature about which figures are not available, enter into the grounds for decision. As regards the unification of the New South Wales and Victorian gauges, the advantage of reducing the broad gauge to the 4-ft. 8½-in. gauge is that there would be no necessity for the alteration of tunnels, cuttings, bridges, or viaducts.

In 1897 a conference was held between the Railway Commissioners of New South Wales, Victoria, and South Australia to consider and report upon the unification of the railway gauges of the States. In their report the Commissioners estimated the cost of converting all the lines in the three States to a 5-ft. 3-in. gauge at £4,260,000, and to one of 4-ft. 8½-in. at £2,360,500. In 1903 the question was again brought up, more particularly with regard to the proposed transcontinental line, and the Engineers-in-Chief reported in favour of a gauge of 4-ft. 8½-in. At the Premiers' Conference, held in January, 1912, the subject was again under consideration, but no decision was come to.

In November 1912, another conference of railway engineers, representing the six States and the Federal Government, was held, and the question of unification of gauge was again discussed. The necessity for such a step was emphasised, and a conclusion was come to that the relative advantages of the 5-ft. 3-in. and 4-ft. 8½-in. gauges, from the point of view of efficiency and economy of working, were approximately equal, and that the determination of the most suitable gauge should be made on the basis of cost. Owing, however, to the fact that track mileage, ton mileage, and wages, had at the time increased 90, 200, and 50 per cent. respectively since 1897, together with a correspondingly large increase in the cost of material, the Conference estimated the cost of converting all lines to a 5-ft. 3-in. gauge at £51,659,000 and to a 4-ft. 8½-in. gauge at £37,164,000. It recommended that the latter gauge should be adopted, and pointed out that the longer the work of conversion was delayed, the greater the cost would become. An alternative scheme by which the main trunk lines and the more important branches should be converted was also proposed, as possibly meeting immediate requirements, and being, from a Federal point of view, perhaps a more attractive proposition than any other which could be suggested at the present time. The estimated cost of this limited scheme was £12,142,000. The subject was again under discussion at the Premiers' Conference, held in Melbourne in April 1914, when it was decided to refer the matter to the Interstate Commission, that the latter body might furnish a report as to the benefits of unification, its cost, and the apportionment of such cost.

In May 1915, another Premiers' Conference took place at Sydney, and the uniform gauge question again received consideration, with the result that the following resolution was carried without dissent:—"That . . . two leading railway experts, preferably from outside Australia, should be forthwith appointed by the Government of the Commonwealth and the mainland States to . . . report on—(1) the need of a uniform gauge, (2) the most suitable gauge, (3) the best method of carrying out uniformity, (4) what benefits would result to the Commonwealth and to the States, and (5) the probable cost."

In May 1916 a Premiers' Conference took place at Adelaide, when the question of the adoption of a third rail was discussed, with the result that a motion was carried in the following terms:—"That this Conference agrees to the appointment of a committee of experts, one from each State and the Commonwealth, to investigate the whole question of the laying of a third rail." A further motion was carried to the effect—"That on the receipt of the report of the committee of experts there should be an early meeting of Commonwealth and State Ministers controlling railways to consider the advisability of an early practical application of the third rail system on some selected section." This subject engaged attention at the Premier's Conference at Sydney in May, 1918, when it was urged that an early test of the third rail system should be arranged for.

Early in August, 1918, a conference took place at Melbourne, at which the engineers of the Commonwealth and States' railways were present. The gauge question was fully discussed and a report was drawn up for presentation to the various Governments. Up to the time of going to press this report had not been published.

7. **Loading Gauges.**—Allied to the question of the gauges of the railways of Australia is that of the loading gauges which are in use, the loading gauge being the maximum dimensions to which the rolling stock may be constructed. In the following table will be found particulars of the loading gauges at present in use on the Government railways, State and Federal:—

### LOADING GAUGES IN USE ON STATE AND FEDERAL GOVERNMENT RAILWAYS, 1917.

#### PASSENGER ROLLING STOCK.

Railway.	Gauge of Track.	Maximum Loading Gauge.			
		Width.	Height ab'v'e Rail Level.	Length over all.	Tare.
	ft. in.	ft. in.	ft. in.	ft. in.	T. c. q.
New South Wales ...	4 8½	9 8	14 0	74 4½	44 2 1
Victoria ...	5 3	9 11½	14 0½	74 1½	46 17 2
" ...	2 6	7 0½	10 4½	31 8	8 11 0
Queensland ...	3 6	9 4	12 9	53 5	26 14 0
" ...	2 0	6 3½	10 0	22 0	3 0 0
South Australia ...	5 3	10 4½	14 1½	74 1½	37 11 2
" ...	3 6	9 4½	12 1	62 6	24 18 0
Western Australia ...	3 6	8 10	12 7	60 9	31 10 0
Tasmania ...	3 6	9 6	12 5	64 0	30 0 0
" ...	2 0	6 6	10 0	30 2	5 10 1
Federal—					
Trans-Australian ...	4 8½	10 6	14 6	75 0	58 0 0
Northern Territory ...	3 6	9 4	12 9	33 6	11 0 0
Oodnadatta ...	3 6	10 2	12 4	33 6	11 0 0

#### GOODS ROLLING STOCK.

Railway.	Gauge of Track.	Maximum Loading Gauge.				
		Width.	Height ab'v'e Rail Level.	Length over all.	Tare.	Carrying Capacity.
	ft. in.	ft. in.	ft. in.	ft. in.	T. c. q.	T. c. q.
New South Wales ...	4 8½	9 8	13 6	60 11	20 10 3	40 0 0
Victoria ...	5 3	9 7½	13 5	55 4½	20 6 0	30 0 0
" ...	2 6	6 5½	9 7½	27 3½	7 12 2½	10 0 0
Queensland ...	3 6	8 0	12 0	45 5	11 10 0	21 8 0
" ...	2 0	6 6	9 0	22 0	4 10 0	16 0 0
South Australia ...	5 3	10 0½	12 10½	43 6	16 0 0	30 0 0
" ...	3 6	8 6	12 1	38 9	11 15 0	25 0 0
Western Australia ...	3 6	8 8	12 6	44 9	17 18 0	25 0 0
Tasmania ...	3 6	8 6	11 0	40 10	12 5 0	30 0 0
" ...	2 0	6 0	6 6	27 0	5 15 2	20 0 0
Federal—						
Trans-Australian ...	4 8½	10 6	14 6	45 0	15 0 0	40 0 0
North'n Territory ...	3 6	9 4	12 9	32 6	6 0 0	12 0 0
Oodnadatta ...	3 6	10 2	12 4	18 0	5 0 0	12 0 0

In the above tables the dimensions given are not necessarily those of one particular vehicle, but are the greatest employed on any vehicle.

**8. Mileage Open for Traffic.**—In all the States of the Commonwealth the principle that the control, construction, and maintenance of the railways should be in the hands of the Government has long been adhered to, excepting in cases presenting unusual circumstances. In various parts of the Commonwealth, lines have been constructed and managed by private companies, but at the present time nearly the whole of the railway traffic in the Commonwealth is in the hands of the various State Governments. A large proportion of the private lines which are at present running have been laid down for the purpose of opening up forest lands, mining districts or sugar areas, and are not generally used for the conveyance of passengers or the public conveyance of goods. (See *F. Private Railways*, hereinafter.)

*Mileage of Government and Private Lines, 1855 to 1917.* The subjoined table shews the mileage of Commonwealth Government, State Government, and private lines open for traffic (exclusive of sidings and cross-overs) in each State at different periods since the inauguration of railways in Australia in 1854 up to the year 1917. The railway mileage given for each State includes both Commonwealth and State Government railways in that State, and in this table and in those on the following page, is estimated from the geographic point of view and not from that of ownership. The figures from 1855 to 1881 are given to the end of the calendar year; later figures are to the end of the financial year ended on the 30th June, unless otherwise stated, excepting the mileages for private lines, which are in most cases taken for the calendar year:—

**GOVERNMENT AND PRIVATE RAILWAYS.—MILEAGE OPEN, 1855 to 1917.**

Year.	N.S.W.	Vict.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	C'wlth.
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
1855 ...	14	2½	...	6½	...	...	...	23½
1861 ...	73	114	...	56	...	...	...	243
1871 ...	358	276	218	133	12	45	...	1,042
1881 ...	1,040	1,247	800	845	92	168	...	4,192
1890-1...	2,263	2,763	2,205	1,666	†656	†425	145	10,123
1900-1...	2,926	3,238	2,904	1,736	1,984	†618	145	13,551
1910-11	4,027	3,574	4,390	1,993	3,208	675	145	18,012
1912-13	4,197	3,698	4,936	2,202	3,827½	729	145	19,734½
1913-14	4,251	3,886	5,213	2,357	3,910	766½	146	20,529½
1914-15	4,444	3,936½	5,449½	2,955	4,553	779½	146	22,263½
1915-16	4,496½	4,152½	6,452½	3,060½	4,707½	758½	146	23,773½
1916-17	4,786½	4,176½	6,702½	3,241½	4,878½	783½	199½	24,769—

\* The line between Goolwa and Port Elliot was opened in 1854 as a horse tramway, but now forms part of the railway system. † To the 31st December, 1891. ‡ To the 31st December, 1901.

It will be seen from the above table that the rate of construction up to the year 1871 was very slow, the average annual length of lines opened from 1861 to 1871 being only 80 miles for the whole Commonwealth. By the middle of the following decade, however, the principal mountain ranges had been crossed, and the work of construction could be proceeded with at a greater rate, and at a less cost per mile. A great period of activity was from 1881 to 1891, when the average annual length opened for traffic was 593 miles for the whole Commonwealth; the corresponding figures for the following periods from June 1891 to June 1901, and from June 1901 to June 1911, were 343 and 446 miles respectively. Since June, 1911, the average annual length opened for traffic has been 1126 miles.

**9. Comparative Mileage of Government and Private Lines, 1917.**—The subjoined table shews for each State (a) the length of lines owned by the State Government, and by the Commonwealth Government in that State, all of which lines are open for general use by the public, (b) the length of private lines available for general use by the public, and (c) the length not so available. The mileages specified in the case of Government lines are to the 30th June, 1917; those given for private lines are as nearly as possible to the 31st December, 1916:—

**GOVERNMENT AND PRIVATE RAILWAYS.—COMPARATIVE MILEAGE OF GOVERNMENT LINES, OF PRIVATE LINES AVAILABLE FOR GENERAL TRAFFIC, AND OF PRIVATE LINES NOT SO AVAILABLE, 1916-17.**

State or Territory.	Government Lines.	Private Lines available for General Traffic.	Total Open for General Traffic.	Private Lines used for Special Purposes only.	Grand Total.
	Miles.	Miles.	Miles.	Miles.	Miles.
New South Wales	*4,442.02	183.08	4,625.10	161.65	4,786.75
Victoria...	4,122.64	24.94	4,147.58	28.83	4,176.41
Queensland ...	5,213.79	529.62	5,743.41	958.91	6,702.32
South Australia ...	†3,202.82	...	3,202.82	39.00	3,241.82
Western Australia	‡3,879.10	277.00	4,156.10	722.31	4,878.41
Tasmania ...	581.65	162.19	743.84	39.80	783.64
Northern Territory	199.56	...	199.56	...	199.56
Total ...	21,641.58	1,176.83	22,818.41	1,950.50	24,768.91

\* Including the Federal Territory line (4.94 miles)., † Including the Oodnadatta line (477.96 miles) and Trans-Australian line (504.20 miles). ‡ Including the Trans-Australian line (454.00 miles).

**10. Comparative Railway Facilities in Different States, and in the Northern Territory, 1917.**—The relations to populations and areas respectively of the mileage of line open to the public for general traffic (including both Government and private lines) on the 30th June, 1917, are shewn in the subjoined statement for each State, the Northern Territory, and also for the Commonwealth :—

**GOVERNMENT AND PRIVATE RAILWAYS.—COMPARISON OF RAILWAY FACILITIES IN DIFFERENT STATES AND IN THE NORTHERN TERRITORY, 1917.**

State or Territory.	Population. 30th June, 1917.	Area.	Mileage of Railway.	
			Per 1000 of Population.	Per 1000 sq. miles of Territory.
	Number.	Sq. miles.	Miles.	Miles.
New South Wales* ...	1,871,142	310,372	2.56	15.42
Victoria ...	1,402,650	87,884	2.98	47.52
Queensland ...	681,302	670,500	9.84	9.96
South Australia ...	429,890	380,070	7.54	8.53
Western Australia ...	308,530	975,920	15.81	5.00
Tasmania ...	197,337	26,215	3.97	29.89
Northern Territory ...	5,043	523,620	39.57	0.38
Commonwealth ...	4,895,894	2,974,581	5.06	8.33

\* Including Federal Territory.

**11. Classification of Lines according to Gauge, 1916-17.**—The subjoined tables give a classification, according to gauge, of the total mileage, exclusive of sidings and cross-overs, of (i.) Commonwealth Government railways, given in the State in which situated ; (ii.) State Government railways ; (iii.) Private railways open to the public for general traffic ; and (iv.) Private lines used for special purposes. Particulars of Government railways are up to 30th June, 1917, of private railways open for general traffic to the 31st December, 1916, and of private railways open for special purposes to the 31st December, 1916, as nearly as possible.

**GOVERNMENT AND PRIVATE RAILWAYS.—CLASSIFICATION ACCORDING TO GAUGE,  
1916-17.**

State or Territory in which situated.	Mileage having a Gauge of—						Total.
	5 ft. 3 in.	4 ft. 8½ in.	3 ft. 6 in.	3 ft. 0 in.	2 ft. 6 in.	2 ft. 0 in.	
FEDERAL RAILWAYS.							
South Australia ...	Miles. ...	Miles. 504.20	Miles. 477.96	Miles. ...	Miles. ...	Miles. ...	Miles. 982.16
Western Australia ...	... 454.00	...	...	...	...	...	454.00
Northern Territory...	... ..	...	199.56	...	...	...	199.56
Federal Territory ...	... 4.94	...	...	...	...	...	4.94
Total...	... ..	963.14	677.52	...	...	...	1,640.66
STATE RAILWAYS.							
New South Wales ...	... ..	4,396.99	40.09	...	...	...	4,437.08
Victoria ...	4,000.74	...	...	...	121.90	...	4,122.64
Queensland ...	... ..	...	5,184.44	...	...	29.35	5,213.79
South Australia ...	1,011.07	...	1,209.59	...	...	...	2,220.66
Western Australia ...	... ..	...	3,425.10	...	...	...	3,425.10
Tasmania ...	... ..	...	558.08	...	...	23.57	581.65
Total...	5,011.81	4,396.99	10,417.30	...	121.90	52.92	20,000.92
PRIVATE RAILWAYS OPEN FOR GENERAL TRAFFIC.							
New South Wales ...	45.00	76.23	35.60	...	...	26.25	183.08
Victoria ...	13.94	...	...	11.00	...	...	24.94
Queensland ...	...	...	424.37	...	...	105.25	529.62
South Australia ...	...	...	...	...	...	...	...
Western Australia ...	...	...	277.00	...	...	...	277.00
Tasmania...	...	...	152.19	...	...	10.00	162.19
Total...	58.94	76.23	889.16	11.00	...	141.50	1,176.83
PRIVATE RAILWAYS OPEN FOR SPECIAL PURPOSES.							
New South Wales ...	...	158.15	3.50	...	...	...	161.65
Victoria ...	28.83	...	...	...	...	...	28.83
Queensland ...	...	...	160.82	...	17.00	781.09	958.91
South Australia ...	...	...	34.00	...	...	5.00	39.00
Western Australia ...	...	...	661.31	...	...	*61.00	722.31
Tasmania...	...	...	38.05	...	...	1.75	39.80
Total...	28.83	158.15	897.68	...	17.00	848.84	1,950.50
ALL RAILWAYS.							
New South Wales ...	45.00	4,631.37	79.19	...	...	26.25	4,781.81
Victoria ...	4,043.51	...	...	11.00	121.90	...	4,176.41
Queensland ...	...	...	5,769.63	...	17.00	915.69	6,702.32
South Australia ...	1,011.07	504.20	1,721.55	...	...	5.00	3,241.82
Western Australia ...	...	454.00	4,363.41	...	...	*61.00	4,878.41
Tasmania ...	...	...	748.32	...	...	35.32	783.64
Northern Territory...	...	...	199.56	...	...	...	199.56
Federal Territory ...	... 4.94	...	...	...	...	...	4.94
GRAND TOTAL ...	5,099.58	5,594.51	12,881.66	11.00	138.90	1,043.26	24,768.91

\* Including 27 miles of 1-ft. 8-in. gauge.

**(B) Federal Railways.**

1. **General.**—On the 1st January, 1911, the Commonwealth Government took over the Northern Territory from the South Australian Government, and at the same time the railways from Darwin to Pine Creek, in the Northern Territory, and from Port Augusta to Oodnadatta, in South Australia, came under its control. Subsequently, the construction of a transcontinental line from Port Augusta, in South Australia, to Kalgoorlie, in Western Australia, was undertaken by the Commonwealth Government, while a line has been constructed in the Federal Territory, connecting Canberra with the New South Wales railway system at Queanbeyan. In 1917 an Act was passed by which all the Commonwealth railways are vested in a Commissioner.

2. **Northern Territory Railway (Darwin to Katherine).**—The line from Darwin to Pine Creek at first came under the jurisdiction of the Department of External Affairs, and was worked under the Administrator of the Northern Territory. As mentioned above, the management of this railway is now vested in the Commissioner.

Particulars as to the working of this line for the year 1901-2 prior to its passing under the control of the Commonwealth Government will be found in sub-section C, State Government Railways.

In the Northern Territory Acceptance Act, the construction of a transcontinental line from South Australia is provided for. The extension of the line from Pine Creek to Katherine River has been completed, and the first train ran through to Katherine on 13th May, 1917.

3. **Oodnadatta Line.**—This line was taken over by the Commonwealth Government from 1st January, 1911, but was held under lease by the South Australian Government until 31st December, 1913. From the 1st January, 1914, the line has been worked by the South Australian Government for and on behalf of the Commonwealth. It is provided in the Northern Territory Acceptance Act that the Commonwealth shall annually reimburse the State with the interest payable on the amount of loans raised by the State for the purpose of constructing the railway, and the agreement for working the line prescribes that the Commonwealth is responsible to the State for any financial loss incurred by the State in the working and management of the railway, but is entitled to receive from the State any profit made in such working and management.

4. **Trans-Australian Railway (Kalgoorlie to Port Augusta).**—A Federal Act passed in 1907 provided for the expenditure of a sum of £20,000 for a preliminary survey of a railway line connecting Western Australia with the eastern States. This survey was commenced in 1908, and was completed in March, 1909. The route *via* Tarcoola was, for several reasons, chosen in preference to that *via* Gawler Range and Fowler's Bay. The estimated cost of construction and equipment of the line on the basis of a 4-ft. 8½-in. gauge, from Port Augusta in South Australia to Kalgoorlie in the Western Australian goldfields, a distance of 1063 miles, was £4,045,000. In September, 1911, a Bill was introduced into the Commonwealth Parliament to authorise the construction of the line, and it became law in December following. In South Australia an Act was passed enabling the Commonwealth to acquire lands for the railway in South Australia not exceeding one-eighth of a mile wide on either side of the line, but no town lands are to be included at any time. In Western Australia, an Act was also passed by which all necessary lands are to be granted to the Commonwealth for railway purposes. A Railway Construction Department was created by the Federal Government to carry out the work, which was commenced at Port Augusta in September, 1912. On 12th September the ceremony of cutting the first sod was performed at Port Augusta by the Governor-General, Lord Denman, in the presence

of a representative gathering, and on the 12th February, 1918, a like ceremony was performed at Kalgoorlie by the Prime Minister of the Commonwealth (the Right Hon. Andrew Fisher), and the line was thus commenced at both ends.

The country traversed by the new line may be roughly divided into four sections from Kalgoorlie eastward.

The first section comprises the granite plateau extending for 167 miles out from Kalgoorlie. Much of the country on this section is fairly well timbered with salmon gums and other eucalypts, running up to 50 or 60 feet in height. Kurrajong and sandalwood are also fairly abundant. Throughout there is a luxuriant growth of wild flowers.

The second section is "the limestone plain," which runs for 450 miles to the east from the edge of the granite country. In this section the eucalypts suddenly disappear, and are not seen again until the mallee gums of the bolder sandhills on the eastern edge of the plain are reached. The open plain comes into view 207 miles out, and thence forward the only signs of growth to be observed are the saltbush and blue bush.

About 290 miles out the line runs on to the Nullarbor Plain. One feature of this part of the line should be mentioned, viz., that it runs straight for no less than 309 miles. This is believed to be the longest section of straight-line railway in the world.

Near Loongana, 336 miles out, certain caves are situated, the principal of which is Lynch's.

The South Australian border is reached at a point 453.94 miles out, a small stone cairn marking the boundary. At 605 miles trees are again met with, but they are small and do not grow more than ten to twelve feet high. The limestone plain is left at about 624 miles out.

The third section is the belt of sandhills on the eastern edge of the limestone region, through which the line runs for about 50 miles. In a state of nature, there are no shifting sandhills about this part of the line, as there is a fairly thick growth of small trees, Mallee gums and others, but when the surface is cleared, the soil is easily removed by the wind, and the bigger cuttings for the line have had to be faced with stone.

The fourth section comprises the stretch of country extending for nearly 400 miles from the eastern edge of the sandhills to Port Augusta. For about 100 miles the line runs over red soil plains and undulating country, which give promise of pastoral and possibly agricultural uses.

At Wynbring, 730 miles out, the granite again comes to the surface. One of the most important places on this section is Tarcoola, at which gold mining has been carried on for some time past. East of Tarcoola the "Lake" country is entered. The lakes in this district are merely vast shallow pans, which are beds of salt in dry seasons and contain water only after rains. It may be mentioned that the line does not cross a single permanent stream of water at any part of its length of 1051.73 miles.

At first preparatory work at each end of the line had to be done, and it was not until March, 1913, that any platelaying had been carried out.

By 30th June, 1913,  $3\frac{1}{2}$  miles of line on the 3-ft. 6-in. gauge, and 1 mile on the 4-ft. 8 $\frac{1}{2}$ -in. gauge, had been laid in the depôt at Kalgoorlie, the corresponding lengths at Port Augusta being  $4\frac{1}{2}$  and  $2\frac{1}{2}$  miles respectively.

Platelaying on the main line was commenced on the eastern division on April, 1913, and on the western division in May, 1913.

The rate of progress in the construction of both ends of the line will be seen on reference to the following table:—

## RATE OF CONSTRUCTION OF LINE.

Date.	Position of Rail Head.		Total Length Constructed.
	Ex Kalgoorlie.	Ex Port Augusta.	
	Mls. Chs.	Mls. Chs.	Mls. Chs.
1913—Sept. 1	*8 33	9 40	15 33
Oct. 8	*8 33	25 00	30 73
Nov. 1	*8 33	36 74	42 67
" 18	12 40	...	...
1914—Feb. 1	39 40	63 00	102 40
April 1	82 40	69 56	152 16
June 1	82 40	84 68½	167 28½
Dec. 1	135 60	137 64	273 44
1915—Mar. 1	190 32	200 68	391 20
June 1	254 23	265 73	520 16
Sept. 1	320 68	304 25	625 13
Dec. 1	383 27	330 72	714 19
1916—Mar. 1	411 30	338 73	750 23
June 30	411 30	361 64	773 14
Aug. 28	454 70	...	...
Sept. 29	478 75	395 58	874 53
1917—Jan. 31	535 37	406 9	941 46
June 30	546 43	411 57	958 20
Oct. 17	621 58	430 00	1051 58

\* Exclusive of 2½ miles from Kalgoorlie to the Depôt, which was completed in November, 1913.

In the above table it will be seen that between 1st September, 1913, and 17th October, 1917, the date on which the eastern and western divisions met at 621 miles 58 chains ex Kalgoorlie, a total mileage of 1036 miles 35 chains was completed. Including Sundays and holidays this gave an average of 0.69 mile of line per day; omitting Sundays the average was 0.8 mile of line per day. As there was in the course of the work a certain amount of broken time owing to lack of materials, and also labour difficulties, the last average is not unsatisfactory, more especially when the conditions which had to be encountered owing to the nature of the country traversed by the line are taken into consideration.

The permanent way consists of rails weighing 80 lbs. to the yard and is a single line throughout, with the exception of the lines at the terminal stations. The rails vary in length, some being 33 feet and others 45 feet, the latter having been adopted to reduce the number of rail joints. The sleepers were at first 9 feet long, 10 inches wide by 5 inches in depth. Subsequently they were standardised at 8 feet 6 inches long, 9 inches wide and 5 inches in depth, thus effecting a material saving in timber.

Ballasting has been effected over a limited length of line so far, but is being carried on regularly, though not on a very extensive scale at present.

The stations at the terminal points are of the usual pattern with raised platforms and verandah roofs. That at Kalgoorlie is a continuation of the station belonging to the Western Australian Government railways, the trains on the respective systems being run on opposite sides of the same platform in order to facilitate a rapid exchange of traffic.

At Port Augusta it was necessary to erect a new station on a fresh site, the original station site being entirely unsuitable for the purpose of the new line. The station buildings have been constructed so as to accommodate the officials of the various departments connected with the railway. Engineering and other shops are in operation to carry out the erection and repair of the locomotives and other rolling stock. It is the intention of the Railway Department to undertake the construction of all the rolling stock required for its lines when the conditions for such construction become favourable.

Provision has also been made at Kalgoorlie for the repairs to rolling stock and other railway material.



The intermediate stations on the line have no platforms, the passenger rolling stock being designed so that passengers can get on or off the train without any difficulty at the rail level.

With regard to water supply, the following table will give information as to the reservoirs which have been constructed, and their capacity:—

### RESERVOIRS ON TRANS-AUSTRALIAN RAILWAY.

Distance.		Locality.			Capacity in Gallons.
Ex Kalgoorlie.	Ex Port Augusta.				
Miles. Chains.	Miles. Chains.				
69 0	...	Karonie ...	...	...	7,000,000
104 40	...	— ...	...	...	7,000,000
132 40	...	— ...	...	...	3,000,000
...	53 0	Bookaloo ...	...	...	6,000,000
...	94 0	Wirappa ...	...	...	5,000,000
...	130 0	Burando ...	...	...	5,000,000
...	190 0	Kultanaby...	...	...	8,000,000
...	250 0	Wilgena ...	...	...	5,000,000

Borings for water have been made at many points along the line. In certain cases the daily supply from some of the bores is but small, and the water obtained not satisfactory for locomotive purposes. In other cases the results have been more satisfactory. In this connection it may be mentioned that at one stage of the line, 337 miles in length, there was not any local water to be obtained, and all the water required for locomotives, machinery, men, and animals on that stage had to be conveyed by rail.

Owing to the natural difficulties on the route, which have already been referred to, the Railway Department had to cater and provide for the staff entirely, such operations necessarily entailing a large amount of extra work other than that of the actual construction of the line. These duties have still to be performed for the permanent staff employed along the line, and a mixed train is being run once a week in order to carry the necessary supplies. This train is known as the "Bread and Butter" train.

The passenger rolling stock in use is mounted on two four-wheel bogies, the cars having a length of 65 feet. There are two classes, first and second, both of which have sleeping accommodation. In addition there are dining and lounge cars (the latter for the first-class only). This stock runs very easily notwithstanding the absence of ballast for the major portion of the line. It is, however, the intention to introduce much larger cars when the conditions for their construction become more favorable.

The passenger locomotives are of a type similar to those which have done good service on the New South Wales Government railways. They are of the 4.6.0 type, with driving wheels 5 ft. in diameter, and cylinders 20 in. x 26 in., the working pressure of the boiler being 160 lbs. These are known as the "G" class. The goods or freight engines are also of a type which has been in use on the New South Wales Government railways for some years. They are known as the "K" class, and are of the 4.8.0. type, with driving wheels 4 ft. 3 in. in diameter, and cylinders 22 in. x 26 in. The boilers have superheaters.

The time allowed for the journey from Port Augusta to Kalgoorlie has been fixed at 37 hours 20 minutes (actual), which gives an average speed of 28.16 miles per hour throughout, inclusive of stoppages. Exclusive of stoppages, which aggregate slightly under three hours, the average is about 30.5 miles per hour. In the opposite direction the gross time is 37 hours 30 minutes (actual), which gives an average speed of 28.03 miles per hour. Exclusive of stoppages, which aggregate about 3 hours 10 minutes, the average is 30.6 miles per hour.

The greatest elevation of the line above sea level is at a point 101 miles east of Kalgoorlie, where it is 1326 feet. This is a rise of 86 feet above Kalgoorlie. Port Augusta is only 21 feet above sea level. With the exception of a short distance of 1 in 80, the ruling grade is 1 in 100.

On the 22nd October, 1917, the first through train left Port Augusta with an official party on board for Kalgoorlie. It should be mentioned that owing to deviations from the original route, the length of this line was reduced from 1063.39 miles to 1051.73 miles, a saving of 11.66 miles.

**5. Federal Territory Railway—Queanbeyan-Canberra.**—This line was built by the Railway Construction Branch of the Public Works Department, New South Wales, and was completed and taken over by the Chief Commissioner of Railways for that State, who has since worked the line for and on behalf of the Commonwealth Government. The line was opened for departmental goods traffic on 25th May, 1914. It connects with the New South Wales railway system at Queanbeyan, and is 4.94 miles in length, in addition to which the sidings cover 2.75 miles.

**6. Summary of Federal Railways.**—The following table shews the railway lines open for traffic under the control of the Commonwealth at 30th June, 1917, together with the lines under construction and those which have been or are being surveyed:—

#### FEDERAL GOVERNMENT RAILWAYS, 30th JUNE, 1917.

Terminals.					Miles.
OPEN FOR TRAFFIC.					
Darwin to Katherine (Northern Territory)	...	...	...	...	199.56
Oodnadatta (South Australia)	...	...	...	...	477.96
Federal Territory (Canberra line)	...	...	...	...	4.94
Trans-Australian—Kalgoorlie to 546.49 miles	...	...	...	...	546.49
Port Augusta to 411.71 miles	...	...	...	...	411.71
Total opened for traffic	...	...	...	...	1640.66
UNDER CONSTRUCTION.					
Kalgoorlie (Western Australia) to Port Augusta (South Australia)	...	...	...	...	93.53
SURVEYED OR BEING SURVEYED.					
Katherine River to Mataranka (Northern Territory)	...	...	...	...	64.50
Mataranka to Daly Waters (Northern Territory)	...	...	...	...	95.00
Kingoonya to Boorthanna (South Australia)	...	...	...	...	176.44
Canberra (Federal Territory) to Jervis Bay (New South Wales)	...	...	...	...	140.23
Canberra (Federal Territory) to Federal Territory Border in the direction of Yass (New South Wales)	...	...	...	...	11.67
Daly Waters (Northern Territory) to Oodnadatta (South Australia)	...	...	...	...	851.50
Total surveyed or being surveyed	...	...	...	...	1339.34

**7. Average Miles Worked, Cost of Construction, Revenue, Expenditure, Train Mileage, Number of Passenger Journeys, and Tonnage of Goods and Live Stock carried on Federal Railways.**—In the following table will be found particulars of the average

miles worked, cost of construction, revenue, working expenses, train mileage, number of passenger journeys, and tonnage of goods and live stock carried on the Federal lines during the undermentioned periods:—

**FEDERAL RAILWAYS.—AVERAGE MILES WORKED, COST OF CONSTRUCTION, REVENUE, WORKING EXPENSES, TRAIN MILEAGE, NUMBER OF PASSENGER JOURNEYS, AND TONNAGE OF GOODS AND LIVE STOCK, 1911-17.**

Year ended June 30.	Average Miles Open.	Cost of Construction.	Revenue.	Working Expenses.	Train Miles run.	No. of Pass. Journeys.	Tonnage of Goods and Live Stock.
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**TRANS-AUSTRALIAN.**

		£	£	£			
1915	370	2,846,090	142,159	147,846	497,553	12,324	282,471
1916	668	4,747,062	273,959	273,959	622,919	7,667	248,744
1917	865	6,079,313	290,750	290,750	570,493	4,160	583,250

**ODDNADATTA.**

1911	†240	2,151,309	†29,954	†33,150	†90,031	*	*
1912	478	2,151,710	57,939	69,367	214,321	*	14,071
1913	478	2,153,323	75,869	77,926	281,739	*	15,802
1914	478	2,153,438	76,317	86,102	296,094	*	*
1915	478	2,155,156	66,664	95,871	273,488	*	*
1916	478	2,158,355	64,518	95,069	276,690	*	*
1917	478	2,281,271	66,429	102,298	254,927	*	*

**FEDERAL TERRITORY.**

1914	0.5	45,486	...	...	...	...	...
1915	5	46,108	1,088	1,635	†6,000	*	*
1916	5	47,103	1,040	1,638	1,080	1,079	12,114
1917	5	52,591	592	1,446	1,169	1,578	6,586

**NORTHERN TERRITORY.**

1911	†73	1,040,734	†5,614	†5,882	†15,046	†1,130	†935
1912	146	1,040,702	13,267	18,769	30,916	1,791	1,895
1913	146	1,040,702	14,398	17,963	30,683	1,249	2,781
1914	146	1,040,702	17,819	22,991	30,229	2,739	3,615
1915	146	1,040,702	22,143	27,796	39,652	3,857	11,995
1916	146	1,055,754	31,618	47,953	52,424	4,718	30,007
1917	187	1,664,370	28,695	39,771	87,652	8,034	27,529

**TOTAL ALL LINES.**

†1911	313	3,192,043	35,568	39,032	105,077	\$1,130	\$935
1912	624	3,192,412	71,206	88,136	245,237	\$1,791	15,966
1913	624	3,194,025	90,267	95,889	312,422	\$1,249	18,083
1914	624	3,239,626	94,136	109,093	326,323	†12,739	†13,615
1915	999	6,088,056	232,054	273,148	816,693	†16,181	†294,466
1916	1,297	8,008,274	371,035	418,619	953,113	\$13,464	\$290,865
1917	1,535	10,077,545	386,466	434,265	914,241	\$13,772	\$617,865

\* Not available. † Estimated. ‡ For six months only. § Exclusive of Oodnadatta line. || Exclusive of Federal Territory line. ¶ Exclusive of Oodnadatta and Federal Territory lines.

8. **Number and Description of Rolling Stock, 1917.**—The following table shows the numbers of locomotives and rolling stock in use on the Federal railways, classified according to gauge :—

**CLASSIFICATION OF LOCOMOTIVES AND ROLLING STOCK ON FEDERAL RAILWAYS, 1916-17.**

Railway.	Gauge.		Total.
	4 ft. 8½ in.	3 ft. 6 in.	
LOCOMOTIVES.			
Trans-Australian ... ..	42	1	43
Oodnadatta ... ..	...	*...	...
Federal Territory ... ..	†...	...	...
Northern Territory ... ..	...	12	12
Total ... ..	42	13	55
PASSENGER VEHICLES.			
Trans-Australian ... ..	36	...	36
Oodnadatta ... ..	...	*...	...
Federal Territory ... ..	†...	...	...
Northern Territory ... ..	...	4	4
Total ... ..	36	4	40
VEHICLES OTHER THAN PASSENGER.			
Trans-Australian ... ..	726	31	757
Oodnadatta ... ..	...	*...	...
Federal Territory ... ..	†...	...	...
Northern Territory ... ..	...	316	316
Total ... ..	726	347	1,073

\* South Australian Government railway locomotives and rolling stock used. † New South Wales Government railway locomotives and rolling stock used.

9. **Number of Railway Employees.**—The following table shews the number of employees on the Federal railways at 30th June, 1917, classified according to (a) salaried staff, and (b) wages staff.

**FEDERAL RAILWAYS.—NUMBER OF EMPLOYEES ON RAILWAYS, 1916-17.**

Railway.	1916-17.	
	Salaried Staff.	Wages Staff.
Trans-Australian ... ..	157	2,981
Oodnadatta ... ..	*	*
Federal Territory ... ..	†	†
Northern Territory ... ..	16	161
Total ... ..	173	3,142

\* Worked by South Australian Government railways.

† Worked by New South Wales Government railways.

10. **Accidents.—Number of Killed and Injured.**—The subjoined table gives particulars of the number of persons killed and injured through train accidents and the movement of rolling stock since the 1st January, 1911, on the Federal railways:—

**FEDERAL RAILWAYS.—TOTAL NUMBER OF PERSONS KILLED AND INJURED ON FEDERAL RAILWAYS, 1911-17.**

Railway.	1911.*		1911-12.		1912-13.		1913-14.		1914-15.		1915-16.		1916-17.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Trans-Australian ...	...	...	...	...	...	...	2	3	13	34	1	16	1	37
Oodnadatta ...	1	1	...	1	...	2	...	13	2	2	...	6	...	4
Federal Territory ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Northern Territory	...	1	...	...	...	...	...	...	...	...	1	1	...	2
Total	...	1	2	...	1	2	2	16	15	36	2	23	1	48

\* To 30th June.

(c) **State Railways.**

1. **Mileage Open, 1901 to 1917.**—The following table shows the length of State railways open for traffic on the 30th June in the years 1901-2 and 1912-17:—

**STATE RAILWAYS.—MILEAGE OPEN FOR TRAFFIC, 1901-2 and 1912-17.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	All States.
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
1901-02 ...	3,026	3,302	2,801	†1,736	1,360	*462	145	12,832
1911-12 ...	3,832	3,622	4,123	1,460	2,598	496	†	16,131
1912-13 ...	3,930	3,647	4,381	1,690	2,854	507	...	17,009
1913-14 ...	3,967	3,835	4,570	1,845	2,967	519	...	17,703
1914-15 ...	4,134	3,875	4,838	2,157	3,332	533	...	18,869
1915-16 ...	4,188	4,100	4,967	2,187	3,332	562	...	19,336
1916-17 ...	4,437	4,123	5,214	2,221	3,425	581	...	20,001

\* To the 31st December, 1902.

† Including the mileage (478) of the Oodnadatta line.

‡ Taken over by Commonwealth Government, 1st January, 1911.

The following statement shows the actual mileage opened for traffic in the year 1916-17, and also the annual average increase in mileage opened since 1907 in each State:—

**STATE RAILWAYS.—MILEAGE OPENED ANNUALLY.**

Mileage.	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	Total all States.
Mileage opened during 1916-17 ...	249	22½	247	34½	93	19½	665
Average annual mileage increase in 10 years to 30th June, 1917 ...	98½	72½	207½	86½	166	12	643

(i.) *New South Wales.* During the year ended 30th June, 1917, the following lines were opened for traffic:—Extension at Boorowa ( $\frac{3}{4}$  mile); Barellan to Griffith ( $32\frac{1}{2}$  miles); Wollongong to sidings near Port Kembla ( $2\frac{1}{2}$  miles); Stockinbingal to Caragabal (51 miles); Tullamore to Tottenham ( $33\frac{3}{4}$  miles); Gosford Racecourse line ( $1\frac{1}{4}$  miles); Dunedoo to Coonabarabran ( $74\frac{1}{2}$  miles); and Wagga Wagga to Humula ( $52\frac{1}{2}$  miles); making a total of 249 miles.

(ii.) *Victoria.* The following lines were opened for traffic during 1916-17:—Neerim South to Nayook (8 miles); and Rushworth to Gigarre (late Stanhope North)  $14\frac{1}{2}$  miles; a total of  $22\frac{1}{2}$  miles.

(iii.) *Queensland.* The increase of 247 miles in the mileage opened for traffic in 1916-17 was due to the opening of the following lines:—Roma to Orallo (28.54 miles); Cheepie to Quilpie (47.46 miles); Archer Park to Ridgeland (17.50 miles); Kunwarara to Marlborough (18.41 miles); Emmet to Yaraka (32.10 miles); Koolamarra to Mount Cuthbert (27.76 miles); Butru to Dajarra (20.41 miles); Rollingstone to Moongobulla (6.08 miles); Oona to Dobbyn (20.48 miles); Jaggan to Tarzali (3.63 miles); Tumoulin to Ravenshoe (4.50 miles); and by purchase Bibbohra to Mount Molloy (20.00 miles).

(iv.) *South Australia.* The only line opened for traffic in this State during the year 1916-17 was on the 5-ft. 3-in. gauge, from Salisbury to Long Plains, a distance of  $34\frac{1}{2}$  miles.

By the transfer on 1st January, 1911, to the Commonwealth Government of the line from Port Augusta to Oodnadatta, the railways of the State have undergone a reduction to the extent of 478 miles. This line, however, was leased to the State by the Commonwealth Government until 31st December, 1913, since which date it has been worked on behalf of the Commonwealth under agreement. (See page 662.)

(v.) *Western Australia.* In the year 1916-17 the following new lines were opened for traffic:—Kukerin to Lake Grace ( $25\frac{1}{2}$  miles); Wyalkatchem to Bencubbin ( $52\frac{1}{2}$  miles); Bolgart to Calingiri ( $15\frac{1}{2}$  miles); and an extension of the Coolgardie Racecourse line ( $\frac{1}{4}$  mile); making a total of 93 miles.

(vi.) *Tasmania.* During the year 1916-17 the following lines were opened for traffic:—Russell to Maydena (National Park) ( $4\frac{1}{2}$  miles), and Flowerdale to Preolenna ( $15\frac{1}{2}$  miles), a total of  $19\frac{1}{2}$  miles.

**2. Average Mileage Worked, Train Miles Run, Number of Passenger Journeys, and Tonnage of Goods and Live Stock Carried, on State Government Railways.**—The table on page 669 gives the actual mileage open for traffic at the end of each financial year, but, in considering the returns relating to revenue and expenditure, and other matters, it is desirable to know the average number of miles actually worked during each year. The next table shews the average number of miles worked, the total number of train miles run, the number of passenger journeys, and the tonnage of goods and live stock carried by the Government railways of each State during the years 1901-2 and 1912-17 inclusive:—

**STATE RAILWAYS.—AVERAGE MILEAGE WORKED, TRAIN MILES RUN, NUMBER OF PASSENGER JOURNEYS, AND TONNAGE OF GOODS AND LIVE STOCK CARRIED, 1901-2 AND 1912-17.**

Year.	N.S.W.	Victoria.	Q'land.	Sth. Aust.	West. Aust.	Tasmania.	N. Ter. **	All States.
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**AVERAGE MILEAGE WORKED.**

1901-2	2,953	3,265	12,801	1,736	1,356	1,468	145	12,724
1912-13	3,872	3,639	4,351	1,534	2,783	508	**	16,687
1913-14	3,959	3,747	4,507	1,815	2,910	525	...	17,463
1914-15	4,057	3,848	4,730	2,026	3,096	536	...	18,293
1915-16	4,169	3,955	4,939	2,185	3,332	552	...	19,132
1916-17	4,313	4,104	5,067	2,193	3,370	577	...	19,624

**TRAIN MILES RUN.**

1901-2	11,649,059	11,284,944	5,666,058	4,196,138	4,507,919	1,902,918	30,275	38,237,311
1912-13	19,184,247	14,234,550	11,464,084	6,342,871	5,623,133	1,006,508	**	57,855,392
1913-14	20,549,695	15,028,649	11,346,334	6,721,284	5,565,062	1,000,740	...	60,221,764
1914-15	20,420,023	15,303,209	11,988,521	5,580,679	5,404,814	1,005,145	...	59,702,391
1915-16	21,556,034	13,826,538	11,571,746	5,630,984	5,149,289	1,051,511	...	58,786,102
1916-17	20,300,717	14,022,040	10,729,187	5,730,539	4,500,211	1,080,459	...	56,363,153

**NUMBER OF PASSENGER JOURNEYS.**

1901-2	30,885,214	57,465,077	8,421,258	9,643,058	8,158,299	1,761,345	3,755	115,338,006
1912-13	79,490,012	111,513,908	19,599,072	19,382,330	17,920,096	1,649,539	**	249,854,957
1913-14	86,328,421	116,611,448	22,252,476	19,809,533	19,208,420	1,708,334	...	265,918,632
1914-15	88,774,451	117,259,926	24,257,552	18,331,273	18,635,327	1,750,905	...	269,509,434
1915-16	92,850,838	115,771,238	24,438,905	20,512,753	18,984,541	2,078,228	...	274,536,903
1916-17	96,709,846	108,341,540	24,837,714	18,107,015	17,466,744	1,971,888	...	267,434,747

**TONNAGE OF GOODS AND LIVE STOCK CARRIED.**

1901-2	6,467,552	3,433,627	1,881,570	1,392,257	1,888,146	1,407,505	2,436	\$15,473,093
1912-13	11,666,250	5,150,404	3,797,581	3,016,039	2,866,241	464,934	**	26,961,449
1913-14	13,245,842	5,816,088	4,301,410	3,103,471	3,170,144	408,864	...	30,045,819
1914-15	11,920,881	5,410,045	4,970,873	2,076,280	2,523,859	408,069	...	27,310,007
1915-16	11,915,500	5,829,835	4,570,883	2,396,938	2,554,858	388,782	...	27,656,796
1916-17	11,732,864	5,962,602	4,035,379	2,822,401	2,400,246	401,076	...	27,354,568

\* These figures are partly estimated, the actual returns excluding journeys by season ticket holders. † Exclusive of the Oodnadatta line (478 miles) as from the 1st January, 1911. ‡ Including the Etheridge railway 143 miles in length. § Exclusive of live stock returns for Tasmania. || For the calendar year 1902. The average mileage worked in some cases is greater than the actual mileage open, owing to the fact that the Government railways have running powers over certain private lines. ¶ Exclusive of live stock. \*\* Taken over by Commonwealth Government, 1st January, 1911.

**3. Length and Gauge of Railway Systems in each State.**—A map shewing the State railway lines, and also some private lines open to the public for general traffic, in the different States of the Commonwealth is given on page 653 hereinbefore. In all the States the Government railways are grouped, for the convenience of administration and management, into several divisions or systems, some of which have already been briefly referred to in dealing with the history of construction of the railways. The subjoined summary shews concisely the gauge and length of the main and branch lines included in each division or system of the different States of the Commonwealth for the year ended the 30th June, 1917:—

## STATE RAILWAYS, 1916-17.

Particulars.	Length, including Suburban Lines, and Gauge.		Suburban.*
	4 ft. 8½ in.	3 ft. 6 in.	4ft.8½in.
<b>1. NEW SOUTH WALES.</b>	Miles.	Miles.	Miles.
(i.) The Northern line and branches—			
(a) Main line. Strathfield-Wallangarra ...	488.48	...	98.84
(b) Branch lines ...	585.16	...	5.21
(ii.) The North Coast line and branches—			
(a) Main line. West Maitland-Murwillumbah ...	352.56	...	12.85
(b) Branch lines ...	17.89	...	...
(iii.) The Western line and branches—			
(a) Main line. Sydney-Bourke ...	508.80	...	34.25
(b) Branch lines ...	967.36	...	24.58
(iv.) The Southern line—			
(a) Main line. Granville-River Murray ...	386.25	...	20.69
(b) Branch lines ...	981.62	...	...
(v.) The South-coast (Illawarra) line—			
(a) Main line. Sydney-Nowra ...	94.94	...	34.23
(b) Branch lines ...	13.93	...	9.99
(vi.) Broken Hill line. Broken Hill-Tarrawingee ...	...	40.09	...
Total length all lines, 4437.08 miles ...	4,396.99	40.09	240.64

\* Including lines 34 miles from Sydney and Newcastle respectively, and the Richmond line.

<b>2. VICTORIA.</b>	5 ft. 3 in.	2 ft. 6 in.	* 5ft.3in.
(i.) The South-eastern system—			
(a) Main lines. Dandenong-Port Albert ...	117.27	...	...
Caulfield-Stony Point ...	38.72	...	13.50
(b) Branch lines ...	47.49	3.23	...
(ii.) The Eastern system—			
(a) Main lines. South Yarra-Sale ...	125.27	...	16.00
Traralgon-Orbost ...	132.12	...	...
(b) Branch lines ...	74.69	26.06	1.60
(iii.) The North-eastern system—			
(a) Main line. Essendon Junc.-River Murray... ..	187.44	...	14.75
(b) Branch lines ...	575.20	30.49	1.50
(iv.) The Northern system—			
(a) Main line. Melbourne-Echuca ...	156.00	...	20.25
(b) Branch lines ...	491.77	...	...
(v.) The Midland system—			
(a) Maryborough-Merbein ...	246.49	...	...
(b) Branch lines ...	337.85	...	...
(vi.) The Western and South-western systems—			
(a) Main lines. Sunshine-Warrenheip ...	61.95	...	10.75
Newport-Port Fairy ...	180.24	...	13.00
N. Geelong Junc.-Serviceton ...	267.57	...	...
(b) Branch lines ...	798.79	43.90	...
(vii.) Metropolitan District—			
(a) Richmond-Healesville ...	37.27	...	17.00
(b) Branch lines ...	41.15	18.22	12.99
(c) Princes Bridge-Hurst Bridge ...	22.70	...	19.50
(d) Whittlesea Junction-Whittlesea ...	22.07	...	16.25
(e) Suburban lines—Port Melbourne, St. Kilda, Sandringham, Burnley-Darling, Deepdene-Burwood, Fawkner, Williamstown, etc....	38.69	...	38.69
Total length all lines, 4122.64 miles ...	4000.74	121.90	195.78

\* Within 20 miles of Melbourne.



## STATE RAILWAYS—Continued.

Particulars.	Length, including Suburban Lines, and Gauge.		Suburban
	3 ft. 6 in.	2 ft. 0 in.	3 ft. 6 in.
<b>3. QUEENSLAND.</b>	<b>Miles.</b>	<b>Miles.</b>	<b>Miles.</b>
(i.) The Southern division—			
(a) South-coast line. Yeerongpilly to Tweed Heads	68.13	...	*19.93
(b) South Metropolitan lines and branches	78.86	...	28.09
(c) Main line. Brisbane to Toowoomba	102.20	...	†24.09
(d) Branch lines	170.07	...	...
(e) Southern line. Toowoomba to Wallangarra	122.70	...	...
(f) Branch lines	113.70	...	...
(g) South-western line. Warwick to Dirranbandi	256.44	...	...
(h) Western line. Toowoomba to Cunnamulla	503.12	...	...
(i) Branch lines	408.28	...	...
(j) Nth.-coastline. Northgate Junction to Maryborough	161.59	...	†10.95
(k) Croydon Junction to 235 miles 14 chains...	70.42	...	...
(l) Branch lines	419.32	...	...
(m) Suburban lines	24.43	...	24.43
(ii.) The Central division—			
(a) North Coast line—			
235 miles 14 chains to Rockhampton	160.58	...	...
Glenmore Junction (near Rockhampton) to Marlborough	62.60	...	...
(b) Central line. Rockhampton to Cunnamulla	424.54	...	...
(c) Branch lines	495.87	...	...
(iii.) The Northern division—			
(a) North-Coast line (portions of)—			
Koumala to Paget Junction (Mackay line)	33.60	...	...
Bowen to Carstairs (Bowen line)	65.32	...	...
Carstairs to Stewart's Creek (Gt. N. line)	49.16	...	...
Townsville to Moongobulla	38.96	...	...
Mooliba to Cairns (Cairns line)	41.71	...	...
(b) Mackay line (exclusive of North-Coast line) and Branches	63.13	...	...
(c) Bowen line (see North-Coast line)	...	...	...
(d) Great Northern Railway—			
Townsville to Cloncurry	479.98	...	...
Branch lines	390.23	...	...
(e) Geraldton and Mourilyan Tramway	...	29.35	...
(f) Cairns line. Cairns to Ravenshoe	104.46	...	...
Branch lines	48.40	...	...
(g) Cooktown line. Cooktown to Laura...	68.33	...	...
(h) Normanton line. Normanton to Croydon	95.96	...	...
(i) Mount Mulligan line	29.80	...	...
(j) Mount Garnet line	32.55	...	...
Total length all lines, 5213.79 miles	5184.44	29.35	107.49

\* To Beenleigh.

† To Ipswich.

‡ To Petrie.

## STATE RAILWAYS—Continued.

Particulars.	Length including Suburban lines, and Gauge.		Suburban
	5 ft. 3 in.	3 ft. 6 in.	5 ft. 3 in.
	Miles.	Miles.	Miles.*
4. SOUTH AUSTRALIA.			
(i.) Midland system—			
(a) Main line. Adelaide-Terowie ...	139.81	...	24.51
(b) Branch lines ...	177.72	...	22.91
(ii.) The Northern system—			
(a) Terowie-Quorn ...	...	94.41	...
(b) Other lines ...	5.15	477.81	...
(iii.) The Southern system—			
(a) Main line. Adelaide-Serviceton (near) ...	194.93	...	23.50
(b) Branch lines ...	195.32	...	34.14
(iv.) Murray Lands lines ...	298.14	...	...
(v.) South-eastern system—			
(a) Wolseley-Mount Gambier ...	...	112.26	...
(b) Branch lines ...	...	112.73	...
(vi.) Port Broughton line ...	...	10.01	...
(vii.) Eyre Peninsula system—			
(a) Port Lincoln-Cape Thevenard ...	...	269.53	...
(b) Branch lines ...	...	132.84	...
Total length all lines, 2220.66 miles ...	1011.07	1,209.59	105.06

\* Within 25 miles of Adelaide.

	3 ft. 6 in.	3 ft. 6 in.
	Miles.	Miles.†
5. WESTERN AUSTRALIA.		
(i.) Eastern railway—		
(a) Main line. Fremantle-Northam ...	78.13	40.78
(b) Branch lines ...	93.71	34.70
(ii.) South-western railway—		
(a) East Perth-Picton Junction ...	110.11	18.20
(b) Branch lines ...	498.80	19.96
(iii.) Great Southern railway—		
(a) Main line. Spencer's Brook-Albany Jetty ...	280.05	...
(b) Branch lines ...	556.75	...
(iv.) Eastern Goldfields railway—		
(a) Main line. Northam-Laverton and Leonora ...	533.35	...
(b) Branch lines ...	156.51	...
(v.) East Northern-Mullewa railway—		
(a) Main line ...	262.86	...
(b) Branch lines ...	164.84	...
(vi.) Northern railway—		
(a) Main line. Geraldton-Meekatharra ...	333.97	...
(b) Branch lines ...	207.84	...
(vii.) Hopetoun-Ravensthorpe railway ...	33.78	...
(viii.) Port Hedland-Marble Bar ...	114.40	...
Total length all lines, 3,425.10 miles ...	3,425.10	113.64

† Suburban included in preceding column.

## STATE RAILWAYS—continued.

Particulars.	Length, including Suburban Lines, and Gauge.		Suburban
	3 ft. 6 in.	2 ft. 0 in.	3 ft. 6 in.
<b>6. TASMANIA.</b>	Miles.	Miles.	Miles.
(i.) Main line—			
(a) Hobart-Evandale Junction ... ..	121.80	...	9.69
(b) Branch lines ... ..	113.77	...	...
(ii.) Western line—			
(a) Launceston to Myalla ... ..	135.00	...	...
(b) Branch lines ... ..	71.14	...	...
(iii.) North Eastern line—			
(a) Launceston to Branxholm ... ..	71.01	...	...
(b) Branch line ... ..	0.60	...	...
(iv.) Sorell line ... ..	14.65	...	...
(v.) Strahan-Zeehan line and Branch line ... ..	30.10	...	...
(vi.) North-east Dundas tramway ... ..	...	19.38	...
(vii.) Comstock tramway ... ..	...	4.20	...
Total length all lines, 581.65 miles ... ..	558.07	23.58	9.69

\* Within 10 miles of Hobart.

GRAND TOTAL OF STATE RAILWAYS, 20,000.92 MILES.

4. **Administration and Control of State Railways.**—In each State of the Commonwealth the policy has been established that the railways should be under the control of the Government. This policy, as has been shewn, was actualised early in the railway history of Australia, and, excepting in cases presenting unusual circumstances, may be regarded as the settled policy of the country. In earlier issues of the Year Books (see No. 6, p. 693) will be found a description of the methods adopted by the various State Governments in the control and management of their railways.

5. **Lines under Construction, and Authorised Lines, 1917.**—The following statement gives particulars up to the 30th June, 1917, of the mileage of State railways (a) under construction, and (b) authorised for construction but not commenced:—

**STATE RAILWAYS.—MILEAGE UNDER CONSTRUCTION AND AUTHORISED,  
30th JUNE, 1917.\***

Particulars.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	All States.
Mileage under construction ... ..	† 668.21	116.72	† 323.00	172.65	242.25	45.73	1568.56
Mileage authorised but not commenced ... ..	398.10	52.00	1469.00	2.50	92.50	...	2014.10

\* For similar statistics of Federal Railways see page 666. † Exclusive of 223.46 miles on which work was suspended. ‡ Exclusive of 128.00 miles on which work was suspended.

(i.) **Lines under Construction.** In spite of the great extension of State railways which has taken place since the year 1875 throughout the Commonwealth, there are still, in some of the States, tracts of country of immense area which are as yet practically undeveloped, and in which little in the nature of permanent settlement has been accomplished; the general policy in the States is to extend the existing lines inland, in the form of light railways, as settlement increases, and although it is true that lines which were not likely to be commercially successful in the immediate future have been constructed from time to time, for the purpose of encouraging settlement, the general principle that the railways should be self-supporting is kept in view. (a) In *New South Wales* the lines under construction are chiefly of the "pioneer" class, and are made with a view to affording railway communication over level country to districts in which the

traffic would not warrant the expenditure necessary to provide thoroughly equipped lines. As the traffic increases, the permanent way is strengthened in order to allow the heavy types of engines to run over it. It is probable that railway extension in New South Wales, in the near future, will be mainly confined to lines of the "pioneer" class. The lines under construction on 30th June, 1917, were those from Wauchope to Kempsey (30.30 miles), and Kempsey to Macksville (29.79 miles). These lines, when completed, will form part of an alternative main route between Newcastle and Brisbane. Other lines under construction are as follow:—Wyalong to Cudgellico (70.44 miles), Humula to Tumberumba (28 miles), Dubbo to Merrygoen (59.40 miles), Forbes to Caragabal (37.62 miles), Cobarto C.S.A. Mines (7.25 miles), Condobolin to Menindie (285.70 miles), Broken Hill to Menindie (73.70 miles), Denman to Merriwa (34.92 miles), and the City and Suburban Electric Railways (11.09 miles), a total distance of 668.21 miles. The following lines have also been under construction, but further work thereon has been suspended for the present:—Nimitabel to Bombala (37.85 miles), Sydenham to Botany (6.20 miles), Werris Creek to Binnaway (88.11 miles), Macksville to Raleigh (20.68 miles), Coff's Harbour to Glenreagh (26.37 miles), and Glenreagh to Dorrego (44.25 miles), a total distance of 223.46 miles. (b) *Victoria*. In this State the following lines were under construction by the Board of Land and Works on the 30th June, 1917:—5-ft. 3-in. gauge: Dartmoor to Mumbannar (13.48 miles), Shelley to Cudgewa (19.64 miles), Cavendish to Toolondo (44 miles), Neerim South to Toorenga River (5.98 miles), Koo-wee-rup to McDonald's Track (30.75 miles), and North Geelong to Fyansford (2.87 miles), making in all 116.72 miles. An electric tramway of 4ft. 8½ in. gauge is also under construction from Sandringham to Black Rock, a distance of 2.38 miles. (c) *Queensland*. In December, 1910, the North Coast Railway Act was passed. Under this Act a series of lines, when constructed, will link up a number of existing lines in such a way that a through line will be obtained from Rockhampton to Cairns, *via* Mackay and Townsville, a total distance of 569 miles. By the completion of this line it will be possible to travel from Cairns to the southern border of the State at Wallangarra, a total distance of about 1189 miles. At the same time the Great Western Railway Act was passed. Under this Act provision is made for the extension in a westerly or south-westerly direction of the lines already constructed to Quilpie, Yaraka, Winton, and Dajarra, in such a manner that they will form junctions with a line to be made running north-westerly from Eromanga to Camooweal. These extensions, together with the north-westerly line, will make an aggregate distance of 990 miles to be constructed. With the completion of both these schemes, the railways of this State will be brought into direct communication with each other on both their east and west boundaries. On the 30th June, 1917, the following lines, of an aggregate length of 323 miles, were under construction:—Enoggera to Terror's Creek (24 miles), Murgon to Proston (26 miles), Branch to Winder (12 miles), Orallo to Injune Creek (33 miles), and Dawson Valley line, Rannes to Baralaba (23 miles). Of the Great Western Railway the following part has been under construction but operations have been suspended:—Section C: From Winton to Elderslie (37 miles). The following parts of the North Coast Railway are under construction:—Section A: Marlborough towards St. Lawrence (59 miles); Section B: Koumala to Carmila Creek (25 miles); Mackay northwards to Midge Point (31 miles); Section D: From Moongobulla to Ingham (28 miles); Section E: From Mooliba to Innisfail (12 miles). In the northern division the line from Merinda to Bowen coalfields, 50 miles long, is also under construction. The following lines were under construction during the year, but work was suspended:—Goondoon to Kalliwa (31 miles), Kalbar to Mount Edwards (10 miles), and Tara to Surat (50 miles). (d) *South Australia*. In this State the lines under construction on the 30th June, 1917, were as follow:—Mount Gambier to the Victorian boundary (12 miles), Riverton to Spalding (51.25 miles), Paringa to Renmark (2.5 miles), Balhannah to Mount Pleasant (22 miles), New Palmer to Sedan (20 miles), Nuriootpa to Truro (9.88 miles), and Palmer to Monarto (28.77 miles), 5-ft. 3-in. gauge; and Kielpa to Mangalo Hall (26.25 miles), 3-ft. 6-in. gauge—an aggregate distance of 172.65 miles. (e) In *Western Australia* the following lines were in course of construction by the Public Works Department on the 30th June, 1917:—Wagin to

Bowelling (62½ miles), Bolgart Extension to Piawaning (34½ miles), Esperance northward (60 miles), and Kardinin to Merredin (85 miles), a total distance of 242½ miles. (f) *Tasmania*. At 30th June, 1917, the following lines were under construction, Branhholm to Moorina (13.63 miles), Stanley to Trowutta (25.50 miles), National Park to Maydena (6.60 miles), a total distance of 45.73 miles.

(ii.) *Lines Authorised for Construction.* (a) *New South Wales*. At the 30th June, 1917, the following lines had been authorised for construction:—Mirrool to Hillston (62.18 miles), Barmedman to Rankin Springs (70.91 miles), Coonabarabran to Burren Junction (95.36 miles), Craboon to Coolah (23.95 miles), Gilgandra to Collie (24 miles), Canowindra to Eugowra (26.70 miles), Grafton to South Grafton (2.34 miles), Roslyn to Taralga (15.82 miles), and Molong to Dubbo (76.84 miles), a total distance of 398.10 miles. (b) In *Victoria* the following lines were authorised, but their construction had not been commenced up to the end of June, 1917:—5-ft. 3-in. gauge: White Cliffs to Yelta (10 miles), Alberton to Won Wron (12.25 miles), Nandaly to Kulwin (19.75 miles), and Bittern to Red Hill (10 miles)—a total of 52 miles. (c) *Queensland*. In addition to the new lines upon which work has been commenced, Parliament has also authorised the construction of the following parts of the Great Western Railway: Section A, from Quilpie to Eromanga (120 miles); Section B, from Yarakka (251 miles); Section C, 37 miles to Springvale (324 miles); and Section D, from Dajarra (258 miles); and on the North Coast Railway, Section B, from Carmila Creek to St. Lawrence (17 miles), Mackay northwards to Midge Point (24 miles); Section C, from Midge Point to Proserpine (21 miles); Section D, from Ingham to Cardwell (25 miles); Section E, from Innisfail southwards to Cardwell (66 miles). The following lines were also authorised for construction: Inglewood to Texas and Silverspur (44 miles), Mount Edwards to Maryvale (28 miles), Lanefield to Rosevale (17 miles), Gatton to Mount Sylvia (11 miles), Juandah to Taroom (42 miles), Dirranbandi extension (52 miles), Mundubbera to the Northern Burnett (32 miles), Malanda to Millaa Millaa—second section—(8 miles), Evanslea to Cecil Plains (19 miles), Longreach to Winton (110 miles)—a total of 1469 miles. (d) In *South Australia*, Parliament has authorised the construction of a line on the 5-ft. 3-in. gauge from Paringa to Renmark, a distance of 2.50 miles. (e) In *Western Australia* the following lines were authorised for construction up to the 30th June, 1917:—Busselton-Margaret River (37½ miles), Dwarda-Narrogin (33 miles), and Nyabing-Pingerup (21½ miles), a distance of 92½ miles.

6. **Cost of Construction and Equipment of State Railways.**—The total cost of construction and equipment of the State railways of Australia at the 30th June, 1917, amounted to £204,202,437, or to an average of £10,210 per mile open for traffic. Particulars as to the capital expenditure incurred in each State on lines open for traffic are given in the following table:—

**STATE RAILWAYS.—MILEAGE AND COST TO 30th JUNE, 1917.**

State.	Length of Line Open. (Route).	Total Cost of Construction and Equipment.	Average Cost per Mile Open.	Cost per Head of Population.	Mileage per 1000 of Population.
	Miles.	£	£	£	Miles.
New South Wales*	4,437.08	72,006,621	16,229	38.54	2.37
Victoria...	4,122.64	55,652,275	13,498	39.68	2.94
Queensland...	5,213.79	36,476,000	6,996	53.54	7.65
South Australia*	2,220.66	17,687,344	7,964	41.14	5.17
Western Australia*	3,425.10	17,466,802	5,100	56.61	11.10
Tasmania...	581.65	4,913,395	8,447	24.90	2.95
All States...	20,000.92	204,202,437	10,210	41.77	4.09

\* Exclusive of Federal Railways.

It will be seen that the lowest average cost per mile open is in Western Australia, and is only £5100, which is slightly less than one-third of the highest average cost, namely, £16,229 in New South Wales, compared with an average of £10,210 for all the State Government railways. In Western Australia there have been comparatively few engineering difficulties to contend with; moreover, the system was adopted in several instances in that State of giving contractors the right to carry traffic during the period of their contracts, with the result that, at least in all goldfields railway contracts, the cost of construction was considerably lessened.

In the above table the figures relating to cost of construction and equipment do not include the discounts and flotation charges on loans allocated to the railways. This will explain the reason for the differences between the amounts shewn above for Queensland and South Australia and those shewn in the railway reports for these States.

(i.) *Reduction of Cost per Mile in Recent Years.* The average cost per mile of the lines constructed lately in the Commonwealth is very much less than the figure given in the above table, in consequence of the construction of light "pioneer" lines, which have already been referred to, and which it was originally considered in New South Wales could be laid down at a cost of £1750 per mile (exclusive of stations and bridges). It should also be remembered that in the early days of railway construction there were considerable engineering difficulties to overcome, and that labour was scarce and dear. Since 1892 over one thousand six hundred miles of the "pioneer" lines have been opened in New South Wales, the average cost ranging from about £2000 to £7500 per mile, according to the difficulties met in the country traversed. The lowest cost per mile for any line previously constructed had been that of the line from Nyngan to Cobar and the Peak, the average cost of which, to the end of June, 1917, was £3786. In Victoria also the cost of construction has been greatly reduced in recent years. The total cost to the 30th June, 1917, of the narrow gauge (2 ft. 6 in.) lines, having a length of one hundred and twenty-two miles, was only £341,160, which gives an average cost per mile of only £2796. In the other States the cost of construction per mile has been similarly reduced by building light railways as cheaply as possible. Fairly substantial permanent way is laid down with reduced ballast, and, as settlement progresses and traffic increases, the road is strengthened, and the stations and siding accommodation enlarged. The subjoined table gives examples of some of the more expensive lines, most of which were built in the early days of railway construction in Australia:—

**STATE RAILWAYS.—EXAMPLES OF LINES CONSTRUCTED AT LARGE CAPITAL EXPENDITURE PER MILE OPEN.**

Line.	Gauge.	Length.			Total Cost.	Average Cost per Mile.	Date of Opening.
		Double Lines and over.	Single Line.	Total.			
	ft. in.	Miles.	Miles.	Miles.	£	£	
NEW SOUTH WALES—							
Pearlth to Bathurst ...	4 8½	88.50	22.55	111.05	4,100,776	36,928	1876
Sydney to Kiama ...	4 8½	39.90	57.79	97.69	4,195,138	42,943	1887
Homebush to Waratah ...	4 8½	95.71	...	95.71	3,547,954	37,069	1899
VICTORIA—							
Melbourne to Bendigo ...	5 3	100.89	...	100.89	4,944,829	49,012	1862
N. Geelong to Ballarat ...	5 3	41.45	11.98	53.43	1,955,816	36,605	1862

The next table gives instances of lines which have been constructed in more recent years at a comparatively small cost per mile.

The average cost per mile of the 458.77 miles comprised in the above table was £40,858, whereas the average cost of the 360.06 miles referred to in the next table was £1911.

**STATE RAILWAYS.—EXAMPLES OF LINES CONSTRUCTED AT SMALL CAPITAL EXPENDITURE PER MILE OPEN.**

Line.	Gauge.	Length.	Total Cost.	Average Cost per Mile.	Date of Opening.
	ft. in.	Miles.	£	£	
<b>NEW SOUTH WALES—</b>					
Parkes to Condobolin ...	4 8½	62.75	132,780	2,116	1898
Burren Junction to Collarenebri	4 8½	42.55	104,506	2,456	1906
<b>VICTORIA—</b>					
Wangaratta to Whitfield ...	2 6	30.49	40,147	1,317	1899
Wycheproof to Sealake ...	5 3	47.89	85,137	1,778	1895
Ultima to Chillingollah ...	5 3	20.14	34,537	1,715	1909
<b>QUEENSLAND—</b>					
Dalby to Bell ...	3 6	23.50	38,307	1,630	1906
Mahar to Jandowae ...	3 6	28.24	60,865	2,155	1914
<b>SOUTH AUSTRALIA—</b>					
Wandilo to Glencoe ...	3 6	9.13	11,682	1,280	1904
Cummins to Yeelanna ...	3 6	8.82	16,043	1,818	1909
Tailem Bend to Pinnaroo ...	5 3	86.55	163,955	1,883	1906

The comparisons afforded in the two preceding tables are subject to certain limitations, inasmuch as the cost is naturally greater in the case of the older lines. Further, the figures given represent the cost of construction only (i.e., are exclusive of cost of equipment), and cannot therefore be directly compared with the average cost per mile open given in the table on page 677.

(ii.) *Capital Cost of Construction and Equipment, Total and per Mile Open.*

The increase in the total capital cost of construction and equipment of Government railways in each State for 1901-2 and for each year from 1912 to 1917 is shewn in the following table:—

**STATE RAILWAYS.—CAPITAL COST OF CONSTRUCTION AND EQUIPMENT, 1901-2 and 1912-17.**

Year.	N.S.W.	Victoria.	Q'land.	Sth. Aust.	West. Aust.	Tas.	N. Ter. †	All States.
<b>TOTAL COST OF LINES OPEN.</b>								
	£	£	£	£	£	£	£	£
1901-2	40,565,073	40,613,784	20,119,143	*12,769,899	7,410,426	13,840,747	1,018,700	126,337,772
1912-13	57,003,036	46,989,111	29,895,220	14,035,437	14,913,128	4,400,292	†	167,236,224
1913-14	60,128,491	49,216,744	31,817,792	15,240,779	15,873,852	4,496,634	...	176,774,292
1914-15	64,008,436	51,518,792	33,405,877	16,597,139	16,980,712	4,628,911	...	187,139,867
1915-16	68,825,592	54,428,148	34,787,623	17,236,543	17,118,195	4,798,646	...	197,194,747
1916-17	72,006,621	55,652,275	36,476,000	17,687,344	17,466,802	4,913,395	...	204,902,437
<b>COST PER MILE OPEN.</b>								
	£	£	£	£	£	£	£	£
1901-2	13,405	12,300	7,183	*7,428	5,449	13,313	7,124	9,860
1912-13	14,505	12,884	6,824	8,307	5,225	8,679	†	9,773
1913-14	15,157	12,834	6,962	8,260	5,350	8,664	...	9,986
1914-15	15,463	13,295	6,905	7,695	5,096	8,685	...	9,918
1915-16	16,434	13,275	7,004	7,881	5,138	8,535	...	10,198
1916-17	16,229	13,498	6,996	7,964	5,100	8,447	...	10,210

\* Including the Oodnadatta line.

† To the 31st December, 1902.

‡ Transferred to Commonwealth Government, 1st January, 1911.

(iii.) *Loan Expenditure on Railways.* The subjoined table shews the total loan expenditure on Government railways and tramways (including lines both open and unopen) in each State during the financial year 1901-2, and on railways only for all States except Western Australia in 1913-14, and Tasmania for the years 1912-13 to 1916-17.

## STATE RAILWAYS.—LOAN EXPENDITURE, 1901-2 and 1912-17.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	£	£	£	£	£	£	£
1901-2*	2,243,672	483,325	751,451	121,907	578,985	†80,948	4,260,288
1912-13	3,614,306	1,231,113	2,066,819	1,207,335	1,948,876	*116,393	10,184,842
1913-14	4,903,328	2,361,660	1,679,482	1,489,168	*1,227,711	*146,055	11,807,404
1914-15	4,894,318	2,809,926	1,739,156	1,285,431	670,209	*228,285	11,127,325
1915-16	4,787,669	2,440,317	2,034,614	929,143	414,026	*233,601	10,839,370
1916-17	3,706,422	1,266,352	1,342,249	413,095	308,027	*133,056	7,169,201

\* Including tramways. † For the calendar year 1902.

The following statement shews the total loan expenditure on railways to the 30th June, 1917 :—

## STATE RAILWAYS.—TOTAL LOAN EXPENDITURE IN EACH STATE TO 30th JUNE, 1917.

State ...	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.*	All States.
	£	£	£	£	£	£	£
Expenditure ...	77,205,050	53,831,507	38,358,275	20,146,099	17,340,913	5,411,039	212,292,883

\* Including tramways.

## 7. Gross Revenue ; Total per Average Mile Worked, and per Train-mile Run.—

The following table shews the total revenue from all sources, the revenue per average mile worked, and the revenue per train-mile run in each State during 1901-2 and each financial year from 1912 to 1917 inclusive :—

## STATE RAILWAYS.—GROSS REVENUE, TOTAL PER AVERAGE MILE WORKED, AND PER TRAIN MILE RUN, 1901-2 and 1912-17.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter. †	All States.
TOTAL GROSS REVENUE.								
	£	£	£	£	£	£	£	£
1901-2 ...	3,668,686	3,367,843	1,389,179	1,085,175	1,521,429	*233,211	12,522	11,971,045
1912-13 ...	6,748,985	5,205,442	3,321,673	2,222,436	2,037,853	327,113	†	19,863,501
1913-14 ...	7,742,241	5,560,958	3,660,022	2,337,251	2,257,011	330,168	...	21,887,651
1914-15 ...	7,616,511	5,161,073	3,832,003	1,745,378	2,058,944	323,265	...	20,736,474
1915-16 ...	8,006,078	5,705,163	3,745,350	1,965,410	2,088,110	348,028	...	21,858,139
1916-17 ...	8,380,084	5,952,719	3,831,967	2,273,530	1,877,382	340,505	...	22,656,187
GROSS REVENUE PER AVERAGE MILE WORKED.								
	£	£	£	£	£	£	£	£
1901-2 ...	1,242	1,031	493	625	1,122	*498	86	886
1912-13 ...	1,743	1,430	763	1,449	732	644	†	1,190
1913-14 ...	1,956	1,484	812	1,288	776	629	...	1,253
1914-15 ...	1,877	1,341	810	861	665	603	...	1,134
1915-16 ...	1,920	1,443	758	899	627	630	...	1,142
1916-17 ...	1,943	1,450	756	1,037	557	591	...	1,155
GROSS REVENUE PER TRAIN-MILE RUN.								
	d.	d.	d.	d.	d.	d.	d.	d.
1901-2 ...	75.58	71.62	58.55	62.07	81.00	*61.99	99.27	70.74
1912-13 ...	84.43	87.77	69.54	84.09	86.98	78.00	†	82.40
1913-14 ...	90.42	88.81	77.42	83.33	97.34	79.18	...	87.23
1914-15 ...	89.52	80.94	76.71	75.06	91.40	77.18	...	83.36
1915-16 ...	89.14	99.03	77.68	83.77	97.32	79.43	...	89.24
1916-17 ...	99.07	101.89	85.72	95.22	100.12	75.64	...	96.47

\* For the calendar year 1902.

† Federal Railway since 1st January, 1911.

8. Coaching, Goods, and Miscellaneous Receipts.—The gross revenue is composed of (a) receipts from coaching traffic, including the carriage of mails, horses, parcels, etc., by passenger trains; (b) receipts from the carriage of goods and live stock, and (c) rents



and miscellaneous items. The subjoined table shews the gross revenue for 1901-2 and 1912-17, classified according to the three chief sources of receipts. The total of the three items specified has already been given in the preceding paragraph.

**STATE RAILWAYS.—COACHING, GOODS, AND MISCELLANEOUS RECEIPTS,  
1901-2 and 1912-17.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust. †	W. Aust.	Tas. *	N. Ter. ‡	All States.
<b>COACHING TRAFFIC RECEIPTS.</b>								
	£	£	£	£	£	£	£	£
1901-2	1,367,796	1,580,218	435,434	369,677	442,719	110,196	3,032	4,309,072
1912-13	2,940,230	2,762,163	1,153,384	733,159	646,218	160,792	†...	8,395,946
1913-14	3,236,512	2,868,705	1,257,100	752,493	666,665	165,909	...	8,947,384
1914-15	3,315,294	2,795,673	1,284,595	668,403	617,553	157,726	...	8,839,244
1915-16	3,574,063	3,003,263	1,339,753	721,555	646,566	179,784	...	9,464,984
1916-17	3,637,656	2,918,557	1,373,531	739,483	607,537	171,220	...	9,447,984
<b>GOODS AND LIVE STOCK TRAFFIC RECEIPTS.</b>								
1901-2	2,263,837	1,719,462	862,234	681,045	1,037,099	116,061	7,996	6,687,734
1912-13	3,705,375	2,352,638	2,140,503	1,441,859	1,299,019	154,522	†...	11,093,916
1913-14	4,397,997	2,603,415	2,359,786	1,534,187	1,483,862	154,564	...	12,533,811
1914-15	4,206,234	2,263,375	2,516,380	1,049,074	1,350,740	153,845	...	11,544,648
1915-16	4,329,971	2,610,210	2,364,364	1,211,465	1,356,452	156,860	...	12,029,322
1916-17	4,542,619	2,934,259	2,433,868	1,502,363	1,176,058	158,162	...	12,747,329
<b>MISCELLANEOUS RECEIPTS.</b>								
1901-2	37,053	68,163	84,511	34,453	41,611	6,954	1,494	274,239
1912-13	103,380	90,641	27,785	47,418	92,616	11,799	†...	373,639
1913-14	107,732	88,838	43,136	50,571	106,484	9,695	...	406,456
1914-15	94,983	97,025	31,028	27,901	89,951	11,694	...	352,582
1915-16	102,044	91,690	41,233	32,390	85,092	11,384	...	363,833
1916-17	199,809	99,903	24,568	31,684	93,787	11,123	...	460,874

\* Tasmanian figures for 1902 are for year ended the 31st December. † Exclusive of Oodnadatta line as from 1st January, 1911. ‡ Federal Railway since 1st January, 1911.

(i.) *New South Wales.* The total earnings for the year 1916-17 amounted to £8,380,084, an increase of £374,006 as compared with the previous year. Increases of £63,593, £212,648, and £97,765 took place in the coaching traffic, goods and live stock traffic, and miscellaneous respectively.

(ii.) *Victoria.* In Victoria, traffic receipts shewed an increase of £247,556 as compared with the previous year. This was due to an increase of £324,049 and £8213 in the receipts from goods and live stock traffic and miscellaneous respectively, and a decrease of £84,706 in coaching traffic receipts.

(iii.) *Queensland.* In Queensland, there was an increase of £86,617 in 1916-17 relatively to 1915-16. There were increases of £33,778 and £69,504 in respect of coaching and goods and live stock receipts respectively, but miscellaneous receipts were lower by £16,665.

(iv.) *South Australia.* In this State there were increases of £17,928 and £290,898 in coaching, and goods and live stock receipts respectively, and a slight decrease of £706 in miscellaneous receipts, the net increase being £308,120 in excess of that for previous year.

(v.) *Western Australia.* In this State the earnings in 1916-17 shewed a decrease of £210,728 as compared with 1915-16. There was an increase of £8695 in miscellaneous receipts, but decreases of £39,029 and £180,394 in the coaching, and goods and live stock receipts respectively.

(vi.) *Tasmania*. The gross revenue in 1916-17 shewed a decrease of £7523 as compared with the previous year. In the goods and live stock receipts there was an increase of £1302, but there were decreases of £8564 and £261 in the coaching and miscellaneous receipts respectively.

The following table shews for the two years 1915-16 and 1916-17 the percentage which each class of receipts bears to the total gross revenue:—

**STATE RAILWAYS.—PERCENTAGE OF REVENUES FROM VARIOUS SOURCES  
ON TOTAL REVENUE, 1915-17.**

Particulars,	1915-16.						
	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	All States.
	%	%	%	%	%	%	%
Coaching ...	44.64	52.64	35.77	36.71	30.96	51.66	43.30
Goods and live stock ...	54.08	45.75	63.13	61.64	64.96	45.07	55.03
Miscellaneous ...	1.28	1.61	1.10	1.65	4.08	3.27	1.67

Particulars.	1916-17.						
	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	All States.
	%	%	%	%	%	%	%
Coaching ...	43.41	49.03	35.84	32.53	32.36	50.28	41.70
Goods and live stock ...	54.21	49.29	63.52	66.08	62.64	46.45	56.27
Miscellaneous ...	2.38	1.68	0.64	1.39	5.00	3.27	2.03

**9. Coaching Traffic Receipts per Average Mile Worked, per Passenger-train Mile, and per Passenger Journey.**—The subjoined table shews the receipts from coaching traffic per average mile of line worked, per passenger-train mile, and per passenger journey in each State and for all States for the year ended the 30th June, 1917:—

**STATE RAILWAYS.—COACHING TRAFFIC RECEIPTS PER MILE WORKED, PER  
PASSENGER TRAIN MILE, AND PER PASSENGER JOURNEY, 1916-17.**

State.	Number of Passenger- Train Miles.*	Number of Passenger Journeys.	Coaching Traffic Receipts.			
			Gross.	Per Average Mile Worked.	Per Pas- senger- Train Mile.	Per Pas- senger Journey.
	No.	No.	£	£.	d.	d.
New South Wales ...	10,434,819	96,709,846	3,637,656	843	83.67	9.03
Victoria ...	7,363,454	108,341,540	2,918,557	711	95.13	6.47
Queensland ...	3,581,156	24,837,714	1,373,531	271	92.05	13.27
South Australia ...	2,635,047	18,107,015	739,483	337	67.35	9.80
Western Australia ...	1,981,637	17,466,744	607,537	180	73.58	8.35
Tasmania ...	470,984	1,971,888	171,220	297	87.25	20.84
Total ...	26,467,097	267,434,747	9,447,984	481	85.67	8.48

\* The returns include the undermentioned mixed-train mileage, which has been divided between passenger-train miles and goods-train miles in the proportion of one-third and two-thirds respectively in the case of the following States:—

New South Wales ...	1,556,599	Western Australia ...	1,043,125
Victoria ...	2,578,948	Tasmania ...	655,664

The preceding table shews that, amongst the States, there is a considerable difference in the amount of the average receipts per passenger journey. This amount ranges from 6.47 pence in Victoria, where there is a large metropolitan suburban traffic, to 20.84 pence in Tasmania. The difference in these amounts cannot be accounted for by the amounts of rates charged, which are fairly uniform in the several States (see sub-section 17), but is largely due to the different traffic conditions which prevail on various lines in the Commonwealth (see sub-section 14). In order to analyse these figures adequately it would be necessary to have particulars regarding the number of passenger-miles, *i.e.*, the total distance travelled by passengers, in each State, but these particulars are not generally available (see sub-section 15.)

The preponderance in the number of passenger journeys in Victoria is accounted for, to a great extent, by the large number of metropolitan suburban passengers in that State. Of the total number of passengers carried in Victoria, 100,138,586 were metropolitan suburban passengers, *i.e.*, were carried between stations within twenty miles of Melbourne, while in New South Wales the number of suburban passenger journeys between stations within thirty-four miles of Sydney, including the Richmond line, and of Newcastle, including Greta, was 86,755,110. In Sydney a large proportion of the metropolitan suburban traffic is carried on the electric and steam tramways, the number of passenger journeys during the year 1916-17 being 278,477,372. In Melbourne, on the other hand, the number of passengers carried on the cable tramways systems during the same period was 103,118,377; and the number carried on the St. Kilda-Brighton, Prahran-Malvern Trust, Melbourne-Brunswick-Coburg Trust, Hawthorn Trust, and the North Melbourne tramways, 45,565,707, making a total of 148,684,084. This matter is referred to herein after. (See sub-section 14.)

**10. Goods and Live-Stock Traffic Receipts per Mile Worked, per Goods-train Mile, and per Ton Carried.**—The following table shews the gross receipts from goods and live-stock traffic per mile worked, per goods-train mile, and per ton carried, for the year ended the 30th June, 1917:—

**STATE RAILWAYS.—GOODS AND LIVE-STOCK TRAFFIC RECEIPTS PER MILE WORKED, PER GOODS-TRAIN MILE, AND PER TON CARRIED, 1916-17.**

State.	Number of Goods-Train Miles.*	Goods and Live-Stock Tonnage.	Goods and Live-Stock Traffic Receipts.			
			Gross.	Per Average Mile Worked.	Per Goods-Train Mile.	Per Ton Carried.
	No.	Tons.	£	£	d.	d.
New South Wales ...	9,865,898	11,732,864	4,542,619	1,053	110.50	92.92
Victoria ...	6,658,586	5,962,602	2,934,259	715	105.76	118.11
Queensland ...	7,148,031	4,035,379	2,433,868	480	81.72	144.75
South Australia ...	3,095,492	2,822,401	1,502,363	685	116.48	127.75
Western Australia ...	2,518,574	2,400,246	1,176,058	349	112.07	117.59
Tasmania...	609,475	401,076	158,162	274	62.28	94.64
Total...	29,896,056	27,354,568	12,747,329	650	102.33	111.84

\* The returns include the undermentioned mixed-train mileage, which has been divided between passenger-train miles and goods-train miles in the proportion of one-third and two-thirds respectively in the case of the following States:—

New South Wales ...	1,556,599	Western Australia ...	1,043,125
Victoria ...	2,578,948	Tasmania ...	655,664

From the preceding table it will be seen that the average cost of freight per ton ranges from 92.92 pence in New South Wales to 144.75 pence in Queensland. The remarks made in the preceding sub-section hereof with regard to the average fare paid per passenger and to passenger-miles, apply equally to the average amount of freight paid per ton and to ton-miles.

11. **Working Expenses.**—In order to make an adequate comparison of the working expenses of the Government railways in the several States, allowance should be made for the variation of gauges and of physical and traffic conditions, not only on the railways of the different States, but also on different portions of the same system. Where traffic is light, the percentage of working expenses is naturally greater than where traffic is heavy; and this is especially true in Australia, where ton-mile rates are in many cases based on a tapering principle—i.e., a lower rate per ton-mile is charged upon merchandise from remote interior districts—and where on many of the lines there is but little back-loading. Further, though efforts have been made from time to time to obtain a uniform system of accounts in the several States, the annual reports of the Commissioners do not yet comprise fully comparable data of railway expenditure.

The following table shews the total annual expenditure, comprising expenses on (a) maintenance of way, works, and buildings; (b) locomotive power—repairs and renewals; (c) carriages and wagons—repairs and renewals; (d) traffic expenses; (e) compensation; and (f) general and miscellaneous charges; and also the percentage of the total of these expenses upon the corresponding gross revenues in each State for 1901-2 and for each year 1912-17:—

**STATE RAILWAYS.—TOTAL WORKING EXPENSES AND PERCENTAGES OF WORKING EXPENSES UPON GROSS REVENUE, 1901-2 and 1912-17.**

Year.	N.S.W.	*Victoria.	Q'land.	§S. Aust.	W. Aust.	Tas.	N. Ter. †	All States.
<b>TOTAL WORKING EXPENSES.</b>								
	£	£	£	£	£	£	£	£
1901-2	2,342,369	2,166,119	992,751	689,517	1,256,370	173,292	34,649	7,655,067
1912-13	4,644,381	3,589,194	2,150,991	1,393,775	1,506,600	217,357	†	13,502,798
1913-14	5,409,820	3,865,498	2,371,261	1,505,765	1,572,008	222,713	...	14,947,065
1914-15	5,311,162	4,238,411	2,401,679	1,448,495	1,497,826	225,995	...	15,123,568
1915-16	5,661,168	4,118,744	2,745,061	1,545,489	1,511,655	248,651	...	15,830,768
1916-17	5,915,360	4,285,456	2,994,187	1,725,341	1,448,451	289,186	...	16,657,981
<b>PERCENTAGE OF WORKING EXPENSES ON GROSS EARNINGS.</b>								
	%	%	%	%	%	%	%	%
1901-2	63.85	64.32	71.83	63.54	82.58	174.31	276.70	67.92
1912-13	63.82	63.95	64.76	62.71	73.93	66.45	†	68.11
1913-14	69.87	69.51	64.43	64.43	69.65	67.45	...	68.29
1914-15	69.73	82.12	62.67	62.99	72.77	69.91	...	72.93
1915-16	70.71	72.19	73.29	78.63	72.39	71.45	...	72.43
1916-17	70.59	71.99	78.14	75.89	77.15	84.53	...	73.53

\* Including amounts paid for pensions and gratuities, and also special expenditures and charges for belated repairs and in reduction of deficiencies. † For the calendar year 1902.  
 ‡ Federal railway, since 1st January, 1911. § Exclusive of the Oodnadatta line as from 1st January, 1911.

(i.) *New South Wales.* In this State the total working expenses in 1916-17 amounted to £5,915,360, an increase of £254,192 as compared with the previous year. This increase was owing to a variety of causes, among which the principal were the increase of wages by awards of wages boards, and the higher cost of coal and materials.

(ii.) *Victoria.* In Victoria the increase in working expenses was owing mainly to increments to staff and to the higher price of coal.

(iii.) *Queensland.* In this State the working expenses increased £249,126 from £2,745,061 in 1915-16 to £2,994,187 in 1916-17. The increase was mainly due to the additions to the wages of the staff, the extra cost of materials, and the opening of new lines 247 miles in length.

(iv.) *South Australia.* In South Australia the working expenses in 1916-17 shewed an increase of £179,852 over 1915-16, viz., from £1,545,489 to £1,725,341. This was owing to an increase in the train mileage, coupled with the advance in the price of fuel, the raising of wages under awards, and the adoption of the eight-hours principle at many stations.

(v.) *Western Australia.* In this case the expenditure was £63,204 lower than in the previous year. This was mainly due to the falling-off of the train mileage, which was 649,078 less than in the year 1915-16. During the year 93 miles of new railway came into operation.

(vi.) *Tasmania.* The working expenses in 1915-16 were £289,186 as compared with £248,651 in the previous year, being an increase of £40,535. Increases to staff and higher prices for coal and materials are mainly responsible for this, coupled with an increase in the mileage worked.

In the preceding table it will be observed that with the exception of the year 1915-16 the percentages of the total working expenses to the total gross earnings of the States railways, have increased each year during the period 1912-13 to 1916-17.

(vii.) *Working Expenses per Average Mile Worked and per Train Mile Run.* The following table shews the working expenses per average mile worked and per train mile run in each State for the years 1901-2 and 1912-17:—

**STATE RAILWAYS.—WORKING EXPENSES PER AVERAGE MILE WORKED AND  
PER TRAIN MILE RUN, 1901-2 and 1912-17.**

Year.	N.S.W.	Victoria.	Q'land.	†S. Aust.	W. Aust.	Tas.	N. Ter.	All States.
<b>WORKING EXPENSES PER AVERAGE MILE WORKED.</b>								
	£	£	£	£	£	£	£	£
1901-2 ...	793	663	354	397	927	*370	238	602
1912-13 ...	1,200	986	494	908	541	428	...	809
1913-14 ...	1,367	1,032	526	830	540	424	...	856
1914-15 ...	1,309	1,101	508	715	484	422	...	827
1915-16 ...	1,358	1,042	556	707	454	450	...	827
1916-17 ...	1,372	1,044	591	787	430	502	...	849
<b>WORKING EXPENSES PER TRAIN MILE RUN.</b>								
	d.	d.	d.	d.	d.	d.	d.	d.
1901-2 ...	48.26	46.07	42.05	39.44	66.89	*46.06	274.67	48.05
1912-13 ...	58.11	60.52	45.03	52.74	64.30	51.83	...	56.01
1913-14 ...	63.18	61.73	50.16	53.69	67.80	53.41	...	59.57
1914-15 ...	62.42	66.47	48.08	62.29	66.51	53.96	...	60.80
1915-16 ...	63.03	71.49	56.93	65.87	70.45	56.75	...	64.63
1916-17 ...	69.93	73.35	66.98	72.26	77.25	64.24	...	70.93

\* For the calendar year 1902. † Excluding the Oodnadatta line as from the 1st of January, 1911.

**12. Distribution of Working Expenses.**—The subjoined table shews the distribution of working expenses, among four chief heads of expenditure, for the years 1901-2 and 1912-17:—

## STATE RAILWAYS.—DISTRIBUTION OF WORKING EXPENSES, 1901-2 and 1912-17.

Year.	N.S.W.	Victoria.	Q'land.	*S. Aust.	W. Aust.	Tas.	N. Ter.	All States.
MAINTENANCE.								
	£	£	£	£	£	£	£	£
1901-2	554,483	490,438	355,615	166,691	246,931	158,612	29,001	1,901,771
1912-13	1,024,215	876,631	601,866	291,361	322,267	58,534	...	3,174,874
1913-14	1,109,749	928,702	649,925	308,244	362,517	57,685	...	3,416,822
1914-15	918,790	1,107,310	626,798	280,062	346,771	58,253	...	3,337,984
1915-16	895,526	998,619	738,160	306,420	361,627	66,090	...	3,366,442
1916-17	932,990	927,315	774,833	391,334	349,714	82,316	...	3,458,502
LOCOMOTIVE, CARRIAGE, AND WAGON CHARGES.								
	£	£	£	£	£	£	£	£
1901-2	1,102,314	845,464	389,766	343,572	670,485	163,792	3,210	3,418,603
1912-13	2,162,217	1,465,732	914,827	729,675	747,240	86,300	...	6,105,991
1913-14	2,687,079	1,636,490	1,015,522	803,421	746,882	96,676	...	6,986,060
1914-15	2,755,669	1,789,836	1,051,683	793,997	714,173	99,829	...	7,205,187
1915-16	2,917,299	1,747,319	1,198,160	859,334	714,802	107,885	...	7,544,799
1916-17	2,926,231	1,953,262	1,326,902	909,660	681,243	125,661	...	7,922,959
TRAFFIC EXPENSES.								
	£	£	£	£	£	£	£	£
1901-2	588,938	671,588	226,237	162,626	306,409	142,416	2,108	2,000,322
1912-13	1,343,707	947,868	585,681	346,705	397,374	60,890	...	3,682,055
1913-14	1,491,423	1,066,738	656,406	365,954	415,836	57,731	...	4,054,088
1914-15	1,502,945	1,099,026	671,622	347,437	392,628	57,814	...	4,071,472
1915-16	1,638,942	1,127,568	744,229	350,472	393,033	62,326	...	4,316,570
1916-17	1,763,466	1,137,703	821,941	391,309	375,655	63,867	...	4,553,941
† OTHER CHARGES.								
	£	£	£	£	£	£	£	£
1901-2	96,634	158,629	21,133	16,628	32,545	78,472	330	334,371
1912-13	114,742	298,963	48,617	26,034	39,819	11,703	...	539,878
1913-14	121,569	233,578	49,408	28,146	46,773	10,621	...	490,095
1914-15	133,758	242,239	51,576	26,999	44,254	10,099	...	508,925
1915-16	209,401	245,238	64,512	29,263	42,193	12,350	...	602,957
1916-17	292,673	267,176	70,511	33,038	41,839	17,342	...	722,579

\* Excluding the Oodnadatta line as from the 1st of January, 1911. † For the calendar year 1902.  
† In the case of Victoria this item includes amounts paid in respect of pensions and gratuities.

13. Net Revenue.—The following table shews the net sums available to meet interest charges, also the percentage of such sums upon the capital cost of construction and equipment of lines opened for traffic in each State for the years 1901-2 and 1912-17:—

## STATE RAILWAYS.—NET REVENUE AND PERCENTAGE OF NET REVENUE ON CAPITAL COST OF LINES OPEN, 1901-2 and 1912-17.

Year.	N.S.W.	Victoria.	Q'land.	*S. Aust.	W. Aust.	Tas.	N. Ter.	All States.
NET REVENUE.								
	£	£	£	£	£	£	£	£
1901-2	1,326,317	1,201,724	389,428	395,658	265,059	159,919	-22,127	3,615,978
1912-13	2,104,104	1,616,248	1,170,681	828,661	531,253	109,756	...	6,360,703
1913-14	2,332,421	1,695,460	1,288,761	831,466	685,003	107,455	...	6,940,686
1914-15	2,305,349	922,662	1,430,324	296,883	560,418	97,270	...	5,612,906
1915-16	2,344,910	1,586,419	1,000,289	419,921	576,455	99,377	...	6,027,371
1916-17	2,464,724	1,667,263	837,780	548,189	428,331	51,319	...	5,938,206
PERCENTAGE OF NET REVENUE ON CAPITAL EXPENDITURE.								
	%	%	%	%	%	%	%	%
1901-2	3.27	2.96	1.94	3.10	3.58	11.56	-2.17	2.81
1912-13	3.69	3.40	3.93	5.90	3.56	2.49	...	3.80
1913-14	3.86	3.44	4.05	5.46	4.32	2.39	...	3.93
1914-15	3.60	1.79	4.28	1.79	3.30	2.10	...	3.00
1915-16	3.41	2.91	2.88	2.44	3.27	2.07	...	3.06
1916-17	3.42	3.00	2.30	3.10	2.46	1.04	...	2.94

\* Exclusive of Oodnadatta line as from the 1st of January, 1911.

† For the calendar year 1902.

Note.—The minus sign (—) denotes net loss.

(i.) *Net Revenue per Average Mile Worked and per Train Mile Run.* Tables shewing the gross earnings and the working expenses per average mile worked and per train mile run have been given above. The net earnings, i.e., the excess of gross earnings over working expenses, per average mile worked and per train mile run are shewn in the following table:—

**STATE RAILWAYS.—NET REVENUE PER AVERAGE TRAIN MILE WORKED  
AND PER TRAIN MILE RUN, 1901-2 and 1912-17.**

Year.	N.S.W.	Victoria.	Q'land.	*S. Aust.	W. Aust.	Tas.	N. Ter.	All States.
<b>NET REVENUE PER AVERAGE MILE WORKED.</b>								
	£	£	£	£	£	£	£	£
1901-2 ...	449	368	139	228	195	†128	—153	284
1912-13 ...	543	444	269	540	191	216	...	381
1913-14 ...	589	452	286	458	235	205	...	397
1914-15 ...	568	240	302	147	181	181	...	307
1915-16 ...	562	401	202	192	173	180	...	315
1916-17 ...	571	406	165	250	127	89	...	306
<b>NET REVENUE PER TRAIN MILE RUN.</b>								
	d.	d.	d.	d.	d.	d.	d.	d.
1901-2 ...	28.87	25.56	16.50	22.53	14.11	†15.93	—175.40	23.16
1912-13 ...	26.32	27.25	24.51	31.35	22.67	26.17	...	26.39
1913-14 ...	27.24	27.07	27.26	29.64	29.54	25.77	...	27.66
1914-15 ...	27.10	14.47	28.63	12.77	24.89	23.23	...	22.56
1915-16 ...	26.11	27.54	20.75	17.90	26.87	22.68	...	24.61
1916-17 ...	29.14	28.54	18.74	22.96	22.87	11.40	...	25.54

\* Exclusive of Oodnadatta line as from the 1st of January, 1911.

† For the calendar year 1902.

Note.—The minus sign (—) denotes net loss.

**14. Traffic Conditions.**—Reference has already been made to the difference in the traffic conditions on many of the lines of the Commonwealth (see sub-sections 9, 10, and 11 hereof). These conditions differ not only in the several States, but also on different lines in the same State, and this is true with regard to both passenger and goods traffic. By far the greater part of the population of Australia is confined to a fringe of country near the coast, more especially in the eastern and southern districts. A large proportion of the railway traffic between the chief centres of population is therefore carried over lines in the neighbourhood of the coast, and is thus, in some cases, open to sea-borne competition. On most of the lines extending into the more remote interior districts, traffic is light; the density of population diminishes rapidly as the coastal regions are left behind; and there is a corresponding diminution in the volume of traffic, while, in comparison with other more settled countries, there is but little back-loading.

As an indication of the different traffic conditions prevailing in the several States, the following table is given shewing the numbers of passenger journeys and the tons of goods carried (a) per 100 of the mean population; and (b) per average mile worked in each State during the financial year 1916-17:—

**STATE RAILWAYS.—PASSENGER JOURNEYS AND TONNAGE OF GOODS  
AND LIVE STOCK, 1916-17.**

Particulars.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	All States.
<b>(a) PER 100 OF MEAN POPULATION.</b>							
Passenger journeys ... No.	5,180	7,688	3,665	4,183	5,550	995	5,458
Goods and live stock ... Tons	628	423	596	652	763	202	558
<b>(b) PER AVERAGE MILE OF LINE WORKED.</b>							
Passenger journeys ... No.	22,423	26,399	4,902	8,257	5,183	3,417	13,628
Goods and live stock ... Tons	2,720	1,453	796	1,287	712	695	1,394

Particulars of the actual numbers of passengers and tons of goods and live stock carried have already been given (see sub-section 2 hereof).

(i.) *Metropolitan and Country Passenger Traffic.* A further indication of the difference in passenger traffic conditions might be obtained from a comparison of the volume of metropolitan, suburban, and country traffic in each State. Particulars are, however, available only for the States of New South Wales and Victoria. The subjoined table shews the number of metropolitan and country passengers carried in each of the States mentioned and the revenue derived therefrom during the year 1916-17:—

**STATE RAILWAYS.—METROPOLITAN, SUBURBAN, AND COUNTRY PASSENGER TRAFFIC, 1916-17.**

Particulars.	Number of Passenger Journeys.			Revenue.		
	Metropolitan.	Country.	Total.	Metropolitan.	Country.	Total.
N.S.W. ...	*86,755,110	9,954,736	96,709,846	*1,043,453	2,158,714	3,202,167
Victoria ...	†100,138,586	8,202,954	108,341,540	†1,113,050	1,465,429	2,578,479

\* Within 34 miles of Sydney and Newcastle, and including the Richmond line.

† Within 20 miles of Melbourne.

From this table it will be seen that the number of passenger-journeys in country districts in Victoria was less than the corresponding number in New South Wales, while the number of metropolitan passenger-journeys in Victoria was greater than in New South Wales, although in the latter State both Sydney and Newcastle are included. In Sydney a larger proportion of the suburban traffic is carried by the tramway systems than in Melbourne. The Sydney ferries also carry a large number of suburban passengers (see § 3., Tramways).

For several years it has been recognised that the suburban passenger transport, both in Sydney and in Melbourne, was increasing so rapidly that it must eventually become impossible to cope with it under the existing systems. A scheme for the electrification of the Melbourne suburban lines was under the consideration of the Victorian Government in 1908, but owing chiefly to a doubt as to its success from a financial standpoint, its adoption was for a time deferred. In November, 1912, however, a Commission was appointed by Parliament to again consider the 1908 scheme, and, acting on its report, the Government decided to at once proceed with the electrification of the suburban lines. Contracts for the construction of power-houses and the necessary equipment were put in hand at an estimated cost of £2,250,299. It was anticipated that a portion of the suburban railway system would be electrically operated by the end of 1915, but, owing to delays in the delivery of plant, due to the war, the date of opening had to be postponed. It is now expected that electrically-propelled trains will be in operation early in the year 1919. In Sydney, a Metropolitan Railway Construction Branch of the Railway Department has been created to deal specially with this matter. The Minister has approved of the construction of an underground city railway, the plans have been prepared, and a commencement has been made with the preliminary works. The preliminary work in the location of a system of electric railways for the eastern, western and northern suburbs is also in hand.

(ii.) *Goods Traffic.* The differing conditions of the traffic in each State might also, to some extent, be analysed by an examination of the tonnage of various classes of commodities carried and of the revenue derived therefrom. Comparative particulars regarding the quantities of some of the leading classes of commodities carried on the Government railways are available for all the States; corresponding information regarding the revenue derived from each class of commodity is not, however, generally available in



a comparable form. In this connection it may be stated that the following resolution was passed at the Interstate Conference of Railway Commissioners held in Melbourne in May, 1909:—"That in view of the variations in the character and classification of the goods traffic in the different States, the subdivisions of tonnage carried and revenue in each State shall be those which best suit local conditions."

The following table shows the number of tons of various representative commodities carried, and the percentage of each class on the total tonnage carried during the financial year 1916-17:—

**STATE RAILWAYS.—CLASSIFICATION OF COMMODITIES CARRIED, 1916-17.**

State.	Minerals.	Fire-wood.	Grain and Flour.	Hay, Straw, and Chaff.	Wool.	Live Stock.	All other Com-modities.	Total.
<b>TONS CARRIED.</b>								
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
New South Wales ...	<sup>1</sup> 6,732,571	241,123	<sup>3</sup> 1,327,067	344,639	117,762	577,798	2,127,340	11,468,300
Victoria ...	<sup>2</sup> 993,624	523,582	1,840,731	274,240	63,507	408,241	1,958,687	5,962,602
Queensland ...	1,409,951	262,638	<sup>4</sup> 30,511	<sup>5</sup> 276,964	62,523	532,979	1,459,613	4,035,379
South Australia ...	882,216	138,010	796,623	56,140	19,774	111,263	818,376	2,822,401
Western Australia...	569,083	598,750	437,894	80,244	12,572	66,040	635,663	2,400,346
Tasmania ...	104,531	42,972	<sup>6</sup> ...	31,532	5,957	20,833	195,251	401,076
All States ...	10,591,976	1,807,275	4,432,815	1,063,759	282,095	1,717,154	7,194,930	27,090,004
<b>PERCENTAGE ON TOTAL TONNAGE CARRIED.</b>								
	%	%	%	%	%	%	%	%
New South Wales ...	<sup>1</sup> 58.71	2.10	<sup>3</sup> 11.57	3.00	1.03	5.04	18.55	100.00
Victoria ...	<sup>2</sup> 14.99	3.78	30.87	4.60	1.06	6.85	32.85	100.00
Queensland ...	34.94	6.51	<sup>4</sup> 0.76	<sup>5</sup> 6.86	1.55	13.21	36.17	100.00
South Australia ...	31.26	4.89	28.22	1.99	0.70	3.94	29.00	100.00
Western Australia...	23.71	24.95	18.25	3.34	0.52	2.75	26.48	100.00
Tasmania ...	26.06	10.71	<sup>6</sup> ...	7.86	1.49	5.20	48.68	100.00
All States ...	39.10	6.67	16.36	3.93	1.04	6.34	26.56	100.00

1. Exclusive of 264,564 tons of coal, on which only shunting and haulage were collected.  
 2. Coal, stone, gravel, and sand. 3. Up journey only. 4. Flour only. 5. Sugar cane.  
 6. Included in all other commodities.

**15. Passenger-Mileage and Ton-Mileage.**—In earlier issues of the Year Book reference has been made to the resolution on the subject of passenger mileage and ton-mileage statistics, passed at the Interstate Conference of Railway Commissioners held in Melbourne, in May, 1909; and to the Report [Cd. 4697] on the same subject by a Committee appointed by the President of the Board of Trade in the United Kingdom (see Year Book No. 10, p. 654).

In the Commonwealth, information regarding "passenger-miles" and "ton-miles" is available, either wholly or in part, for three of the States only, viz., New South Wales, South Australia, and Tasmania, but is not available at all for either Victoria, Queensland, or Western Australia. Of the three States which give particulars of the nature indicated, New South Wales furnishes the information in a classified form according to class of passengers and nature of commodities carried. South Australia supplies particulars for all classes of passengers and goods together, and Tasmania supplies particulars for all classes of passengers together and a classification of nature of commodities carried. Western Australia furnished particulars as to ton-miles for the years 1907-12, but has since discontinued to record them.

(i.) *Passenger-Miles.* Particulars for the whole of the Commonwealth period regarding total "passenger-miles" are available for one State only, namely, Tasmania. For New South Wales to the end of 1909-10, particulars are available for suburban and extended suburban traffic only—i.e., including all stations within 34 miles of Sydney (including

the Richmond line), and of Newcastle (including Greta), but since that date all passenger traffic is included. For South Australia particulars are available for each year since 1904. No particulars are available for other States. In the tables given below the average number of passengers carried per "train," etc., is obtained by dividing the number of "passenger-miles" by the number of "passenger-train-miles." Similarly the "density of traffic" is obtained by dividing the number of "passenger-miles" by the "average miles worked."

### STATE RAILWAYS.—SUMMARY OF "PASSENGER MILES," 1902 and 1913-17.

Year ended 30th June.	Pass'nger Train Mileage.	Number of Passenger Journeys.	Total Passenger Miles.	Amount Received from Passengers.	Average Number of Passengers carried per Train.	Average Mileage per Passenger-journey.	Average Receipt per Passenger-mile.	Average Fare per Passenger-journey.	Density of Traffic per Average Mile Worked.
	Miles. (000 omitted.)	No. (000 omitted.)	No. (000 omitted.)	£	No.	Miles.	d.	d.	No.
NEW SOUTH WALES.									
1913	9,667	79,490	1,192,584	2,571,446	123	15.00	0.52	7.76	308,002
1914	10,081	86,328	1,235,025	2,832,450	123	14.30	0.55	7.87	311,954
1915	10,099	88,774	1,230,901	2,910,684	122	13.87	0.57	7.87	303,402
1916	10,283	92,851	1,321,491	3,147,041	129	12.85	0.57	8.13	316,980
1917	10,435	96,710	1,473,707	3,202,167	141	15.24	0.52	7.95	341,690
SOUTH AUSTRALIA. <sup>1</sup>									
1913	2,804	19,382	228,707	619,094	82	11.80	0.64	7.67	149,092
1914	2,952	19,809	236,764	635,967	80	11.95	0.63	7.70	130,449
1915	2,815	18,831	215,489	560,012	77	11.44	0.60	7.14	106,362
1916	2,786	20,513	218,609	603,203	78	10.66	0.66	7.06	100,050
1917	2,635	18,107	210,303	615,909	80	11.61	0.70	8.16	95,897
TASMANIA.									
1902 <sup>2</sup>	336	761	19,444	88,541	58	25.60	1.09	27.91	42,086
1913	438	1,650	35,607	135,545	81	21.58	0.91	19.71	70,092
1914	446	1,708	36,028	140,185	81	21.09	0.91	19.69	68,624
1915	454	1,751	36,051	132,680	79	20.59	0.88	18.19	67,260
1916	465	2,078	46,719	154,225	100	22.48	0.79	17.81	84,567
1917	471	1,972	40,164	145,941	85	20.37	0.87	17.76	69,607

1. Exclusive of the returns of the Oodnadatta line on and after 1st January, 1911.

2. To 31st December, 1902.

(ii.) *Ton-Miles.* Particulars regarding total "ton-miles" are available for each year since 1901 for the States of New South Wales, South Australia, and Tasmania. Corresponding particulars for Western Australia are available for the years 1907 to 1912, but not for subsequent years. The average freight-paying load carried per "train" is obtained by dividing the total "ton-miles" in the fourth column by the goods-train mileage in the second column. In New South Wales the tonnage carried is exclusive of coal, on which only shunting and haulage charges are collected, and the amount of earnings specified excludes terminals. In South Australia and Tasmania they include terminals, while in Western Australia they exclude wharfage and jetty dues, but include all other charges.

## STATE RAILWAYS.—SUMMARY OF "TON MILES," 1901-2 and 1913-17.

Year ended the 30th June.	Goods Train Mileage.	Total Tons Carried.	Total "Ton-Miles."	Earnings.	Average Freight-paying Load carried per "Train."	Average Miles per Ton.	Earnings per "Ton-mile."	Density of Traffic per Average Mile Worked.
	No. (000 omitted.)	No. (000 omitted.)	No. (000 omitted.)	£.	Tons.	Miles.	d.	Tons.
NEW SOUTH WALES. <sup>1</sup>								
1902	6,586	6,164	436,814	1,947,305	66.32	70.87	1.07	148,464
1913	9,517	11,402	861,940	3,153,626	90.57	75.60	0.88	222,608
1914	10,469	12,901	1,037,911	3,760,384	99.14	80.45	0.87	262,165
1915	10,321	11,660	916,923	3,633,613	89.84	78.64	0.95	226,010
1916	11,273	11,614	1,028,760	3,738,227	91.26	88.58	0.87	246,764
1917	9,866	11,468	1,136,485	3,936,639	115.19	99.10	0.83	263,502
SOUTH AUSTRALIA. <sup>2</sup>								
1902	2,468	1,392	170,523	681,045	69.09	122.48	0.96	98,803
1913	3,539	3,016	355,404	1,441,859	100.43	117.84	0.97	231,685
1914	3,780	3,163	402,356	1,534,187	106.45	129.65	0.92	221,694
1915	2,766	2,076	237,014	1,049,074	85.70	114.15	1.06	116,986
1916	2,845	2,397	278,942	1,211,465	98.04	116.37	1.04	127,662
1917	3,095	2,822	298,442	1,502,363	96.41	105.74	1.21	136,089
WESTERN AUSTRALIA. <sup>3</sup>								
1907	1,940	2,091	144,856	964,653	74.67	69.26	1.60	86,429
1908	1,976	2,059	142,719	948,373	72.22	69.32	1.59	77,989
1909	2,011	1,997	143,629	945,956	71.41	71.92	1.58	72,871
1910	2,281	2,242	163,651	1,042,789	71.75	73.00	1.53	77,855
1911	2,548	2,489	182,738	1,154,662	71.71	73.42	1.52	79,938
1912	2,747	2,542	184,748	1,154,087	67.25	72.67	1.49	77,767
TASMANIA. <sup>4</sup>								
1902 <sup>5</sup>	567	407	14,331	109,266	25.26	35.30	1.82	31,019
1913	569	447	17,747	144,073	31.17	39.67	1.94	34,104
1914	554	389	18,709	142,642	33.76	48.06	1.82	35,826
1915	551	388	19,809	141,049	35.90	51.09	1.70	37,000
1916	586	367	20,105	145,094	34.29	54.81	1.73	36,392
1917	609	380	21,288	146,248	34.93	55.98	1.65	36,894

1. Exclusive of tonnage on which only shunting and haulage charges are collected. 2. Exclusive of the returns of the Oodnadatta line on and after 1st January, 1911. 3. Particulars for years prior to 1907 and for years subsequent to 1912 are not available. 4. Exclusive of live stock. 5. To 31st December.

(iii.) *Classification of Commodity Ton-Mileage.* As previously mentioned New South Wales and Tasmania are the only States for which particulars, specifying the ton-mileage and the earnings per ton-mile for various classes of commodities, are available.

The subjoined statement gives particulars for the last financial year in respect of New South Wales. Miscellaneous traffic consists of timber, bark, bricks, drain-pipes in six-ton lots, and cement in full truck loads, agricultural and vegetable seeds in five-ton lots, and traffic of a similar nature. A and B classes consist of lime, vegetables, tobacco leaf, caustic soda and potash, copper ingots, fat and tallow, water and mining plant in six-ton lots, leather in one and three-ton lots, agricultural implements in five-ton lots,

and other traffic of a similar nature. The table does not include 264,564 tons of coal on which only shunting and haulage charges were collected, nor does it include £62,523 for haulage, tonnage dues, etc.

**NEW SOUTH WALES.—SUMMARY OF TON-MILEAGE FOR THE YEAR ENDED 30th JUNE, 1917.**

Particulars.	Total Tons Carried.	Total Miles Carried.	Average Miles per Ton.	Earnings (exclusive of Terminals).	Earnings per Ton Mile.	Per cent. on Total Tonnage.
	Tons.	Miles.	Miles.	£	d.	%
Coal, coke, and shale ...	5,787,925	262,886,396	45.42	524,057	0.48	50.47
Other minerals ...	704,975	41,646,944	59.08	98,300	0.57	6.15
Crude ores ...	239,671	24,998,401	104.30	59,421	0.57	2.09
Miscellaneous ...	707,801	65,957,549	93.19	201,644	0.73	6.18
Firewood ...	241,123	7,739,428	32.10	27,581	0.86	2.10
Fruit ...	92,714	12,678,777	136.75	56,262	1.06	0.80
Grain, flour, etc. (Up Journey) ...	1,327,067	326,896,522	246.33	595,953	0.44	11.57
Hay, straw, and chaff ...	344,639	78,330,561	227.28	120,023	0.37	3.00
Frozen meat ...	42,994	7,197,612	167.40	34,965	1.17	0.38
A Class ...	535,656	46,311,398	86.46	235,040	1.22	4.67
B " ...	342,725	35,402,229	103.30	266,219	1.80	2.99
C " ...	29,797	2,013,803	67.58	23,028	2.74	0.26
1st Class ...	160,008	15,563,760	97.27	199,028	3.07	1.39
2nd " ...	215,645	32,705,983	151.67	564,859	4.14	1.88
Wool ...	117,762	34,620,007	293.98	290,363	2.01	1.03
Live stock ...	577,798	141,535,676	244.96	639,896	1.09	5.04
<b>Total ...</b>	<b>11,468,300</b>	<b>1,136,485,046</b>	<b>99.10</b>	<b>3,936,639</b>	<b>0.83</b>	<b>100.00</b>

In the following table will be found particulars of the ton-mileage and earnings per ton-mile in the case of Tasmania:—

**TASMANIA.—SUMMARY OF TON-MILEAGE FOR THE YEAR ENDED 30th JUNE, 1917.**

Particulars.	Total Tons Carried.	Total Miles Carried.	Average Miles per Ton.	Earnings.	Earnings per Ton Mile.	Per cent. on Total Tonnage.
	Tons.	Miles.	Miles.	£	d.	%
Agricultural produce ...	80,615	4,230,655	52.47	26,360	1.49	21.20
Hay, straw, chaff and horse feed ...	31,532	1,889,933	59.93	10,337	1.31	8.29
Manures ...	11,284	321,568	28.49	1,378	1.02	2.97
Native coal ...	58,711	6,107,748	104.03	19,488	0.76	15.44
Minerals, other than native coal ...	45,820	1,248,080	27.23	7,938	1.52	12.05
Bark ...	921	35,957	39.04	295	1.96	0.24
Firewood ...	42,972	1,112,879	25.81	5,157	1.11	11.30
Timber ...	38,279	1,754,754	45.84	9,451	1.29	10.07
Wool ...	5,957	374,389	62.84	4,457	2.86	1.57
Miscellaneous goods ...	64,152	4,211,677	65.65	61,387	3.49	16.87
<b>Total ...</b>	<b>380,243</b>	<b>21,287,640</b>	<b>55.98</b>	<b>146,248</b>	<b>1.64</b>	<b>100.00</b>

16. **Interest Returned on Capital Expenditure.**—In the table in sub-section 13 hereof, it will be seen that the State Government railways in the year 1901-2 made a profit of 2.81 per cent. on the capital expenditure at that time. In the subsequent years up to and including the year 1910-11, the percentages were 2.48, 3.04, 3.28, 3.91, 4.37, 4.23, 4.13, 4.18 and 4.56 respectively, rates which shew substantial increases with one exception on that for the first-named year. Since 1910-11, the rates have fallen each year with the exception of the year 1913-14, the rate for the year 1916-17 being 2.94, or 1.62 lower than that for 1910-11. The reasons for this reduction are to be found in the increases of the charges in respect of working expenses, brought about by the opening of new lines, the higher cost of materials, and the raising of the rate of wages, while in the last three years additional expenses have been incurred in consequence of the war. The return on the capital invested as at the 30th June, 1917, was not equal to the interest payable for that year, the rate of which was 3.83 per cent. This average, however, does not accurately express the position. At an early period the necessity for the construction of railways to open up undeveloped districts was recognised, and the money had to be raised at a very high rate of interest. It may be noted, however, that although the loans made for expenditure on railway construction and equipment very largely increase the amount of the public debt of the States, forming, in fact, three-fifths of the total debt, the money borrowed has not been sunk in undertakings which give no return, but has been expended on works which are increasingly reproductive, yielding in most cases a direct return on the capital expended, and representing a greater value than their original cost. In Europe the national debts of various countries have been incurred principally through the expenses of prolonged wars, and the money has gone beyond recovery, but in Australia the expenditure by the States up to a recent period is represented to a large extent by public works which pay a direct return. In addition to the purely commercial aspect of the figures relating to the revenue and expenditure of the State railways, it is of great importance that the object with which many of the lines were constructed should be kept clearly in view; the anticipated advantage in building these lines has been the ultimate settlement of the country rather than the direct returns from the railways themselves, and the policy of the State Governments has been to use their railway systems for the development of the country's resources to the maximum extent consistent with the direct payment by the customers of the railways of the cost of working and interest charges.

(i.) *Profit or Loss after Payment of Working Expenses and Interest.*—The net revenue of the Government railways of each State after payment of working expenses is shewn in sub-section 13 hereof. The following table shews the amount of interest payable on expenditure from loans on the construction and equipment of the railways of each State, the actual profit or loss after deducting working expenses and interest and all other charges from the gross revenue, and the percentage of such profit or loss on the total capital cost of construction and equipment.

It will be seen that during the two years ended 30th June, 1914, all the States, with the exception of Queensland in 1913, and Tasmania for both years, shew a net profit after paying working expenses and interest. In the year ended 30th June, 1915, only two States, New South Wales and Queensland, shew a profit, all the other States a loss, while in the two years ended 30th June, 1917, all the States shew a loss.

The losses during the last two years for all the States are due to the causes to which allusion has already been made in the remarks as to increases in the working expenses of the railways (see pp. 684 and 685 *ante*). It will be observed in the following table that the interest charges in 1917 were £1,166,278 higher than they were in 1915.

**STATE RAILWAYS.—INTEREST ON LOAN EXPENDITURE, PROFIT OR LOSS, AND PERCENTAGE OF PROFIT OR LOSS ON TOTAL COST, 1901-2 and 1912-17.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	All States.
AMOUNT OF INTEREST ON RAILWAY LOAN EXPENDITURE.								
	£	£	£	£	£	£	£	£
1901-2 ...	1,434,638	1,492,635	837,205	469,787	234,932	140,550	47,012	4,656,819
1912-13 ...	1,903,660	1,591,927	1,170,961	492,907	505,925	164,412	...	5,829,792
1913-14 ...	2,089,495	1,674,036	1,250,598	566,497	556,843	169,268	...	6,306,737
1914-15 ...	2,279,070	1,764,379	1,312,196	584,812	586,069	172,349	...	6,698,875
1915-16 ...	2,568,659	1,922,410	1,418,280	663,588	625,250	180,772	...	7,378,959
1916-17 ...	2,858,789	2,006,197	1,500,800	673,985	643,765	181,617	...	7,865,153

**PROFIT OR LOSS AFTER PAYMENT OF WORKING EXPENSES, INTEREST, AND OTHER CHARGES.<sup>2</sup>**

	£	£	£	£	£	£	£	£
1901-2 ...	-108,321	-250,971	-447,777	-74,129	+30,127	-80,631	-69,139	-1,040,841
1912-13 ...	+200,444	+24,321	280	+335,754	+25,328	-54,656	...	+530,911
1913-14 ...	+242,926	+21,424	+38,163	+264,989	+128,160	-61,813	...	+633,849
1914-15 ...	+26,279	-841,717	+118,128	-287,929	-25,651	-75,079	...	-1,085,969
1915-16 ...	-223,749	-335,991	-417,991	-243,667	-48,795	-81,395	...	-1,351,588
1916-17 ...	-394,064	-338,934	-663,020	-125,796	-214,834	-130,298	...	-1,866,946

**PERCENTAGE OF PROFIT OR LOSS ON CAPITAL COST OF CONSTRUCTION AND EQUIPMENT.<sup>2</sup>**

	%	%	%	%	%	%	%	%
1901-2 ...	-0.27	-0.72	-2.22	-0.58	+0.41	-2.10	-6.71	-0.62
1912-13 ...	+0.35	+0.05	-0.00	+2.39	+0.17	-1.24	...	+0.32
1913-14 ...	+0.40	+0.04	+0.19	+1.74	+0.81	-1.37	...	+0.36
1914-15 ...	+0.04	-1.63	+0.35	-1.73	-0.15	-1.62	...	-0.56
1915-16 ...	-0.33	-0.62	-1.20	-1.41	-0.29	-1.70	...	-0.69
1916-17 ...	-0.55	-0.61	-1.82	-0.71	-1.23	-2.65	...	-0.91

1. Inclusive of Oodnadatta line to 31st December, 1910. 2. + Indicates a profit; - indicates a loss. 3. Allowing for payment of special expenditure and charges (see sub-section 11 above).

**17. Passenger Fares and Goods Rates.**—Fares and rates are changed from time to time to suit the convenience and varying necessities of the railways, but, as traffic is developed and revenue increases, they are in many cases reduced to an extent consistent with the direct payment by the customers of the railways of the cost of working and interest charges.

(i.) *Passenger Fares.* On the Australian Government railways two classes are provided for passenger traffic. The fares charged may be classified as follows:—(a) Fares between specified stations (including suburban fares). (b) Fares computed according to mileage rates. (c) Return, periodical, and excursion fares. (d) Special fares for workmen, school pupils, and others. Fares in class (a) are issued at rates lower than the ordinary mileage rates. Fares in class (b) are charged between stations not included in class (a). On the average, mileage-rate fares run about 1.8 pence per mile for first-class and about 1.2 pence per mile for second-class single tickets. In New South Wales, Victoria, and Queensland the mileage rates are based upon a tapering principle, i.e., a lower charge per mile is made for a long journey than for a short journey. In Victoria and Western Australia, return fares are generally about  $1\frac{1}{2}$  to  $1\frac{3}{4}$  times the single fare, and the second-class are about 30 to 45 per cent. lower than the first-class fares. In New South Wales, Queensland, South Australia, and Tasmania the issue of ordinary return tickets outside the suburban areas has now been discontinued. Special excursion return tickets are, however, issued at certain times of the year, subject to restrictions as to break of journey and trains available for such tickets.

The following table shows the passenger fares for different distances charged in each State, between stations for which specific fares are not fixed :—

### ORDINARY PASSENGER MILEAGE RATES ON STATE RAILWAYS, 1917.

State.	For a journey of—					
	50 Miles.	100 Miles.	200 Miles.	300 Miles.	400 Miles.	500 Miles.
<b>FIRST-CLASS SINGLE FARES.</b>						
New South Wales <sup>1</sup> ...	s. d. 5 1	s. d. 12 3	s. d. 26 8	s. d. 41 2	s. d. 55 7	s. d. 66 10
Victoria ...	8 10	17 6	34 8	51 8	67 4	83 4
Queensland ...	8 2	15 4	29 10	43 4	56 0	68 8
South Australia ...	7 6	15 0	30 0	45 0	60 0	75 0
Western Australia ...	8 4	16 8	33 4	50 0	66 8	83 4
Tasmania ...	7 5	14 8	29 3	...	...	...
Average ...	7 7	15 3	30 8	46 2	61 1	75 5
Average per passenger-mile d.	1.81	1.83	1.84	1.85	1.83	1.81
<b>SECOND-CLASS SINGLE FARES.</b>						
New South Wales <sup>1</sup> ...	s. d. 3 4	s. d. 8 1	s. d. 17 0	s. d. 25 5	s. d. 33 0	s. d. 38 7
Victoria ...	6 0	11 8	23 2	34 4	45 0	55 6
Queensland ...	5 5	9 11	19 0	27 1	34 3	41 6
South Australia ...	5 0	10 0	20 0	30 0	40 0	50 0
Western Australia ...	5 3	10 5	20 10	31 3	41 8	52 1
Tasmania ...	5 0	9 10	19 7	...	...	...
Average ...	5 0	10 0	19 11	29 7	38 9	47 6
Average per passenger-mile d.	1.20	1.20	1.20	1.18	1.16	1.14

1. Inclusive of suburban rates up to 34 miles.

(ii.) *Parcel Rates.* In all the States parcels may be transmitted by passenger train upon payment of the prescribed rates, which are based upon weight and distance carried. The rates vary slightly in the different States. In New South Wales they range from threepence for a parcel not exceeding 3 lbs. for any distance up to 25 miles, to twelve shillings and fivepence for a parcel weighing from 85 lbs. to 112 lbs., for a distance of 500 miles. In Victoria the charge for a parcel weighing from 84 lbs. to 112 lbs. for a distance over 450 miles is twelve shillings and fivepence. The rate in Queensland for a parcel weighing from 85 to 112 lbs. for 500 miles is thirteen shillings; in South Australia for 550 miles thirteen shillings and sixpence; in Western Australia for 500 miles fourteen shillings; and in Tasmania for a distance of 250 miles the rate is five shillings and sixpence.

(iii.) *Goods Rates.* The rates charged for the conveyance of goods and merchandise may generally be divided into three classes, viz.:—(a) Mileage rates, (b) District or "development" rates, and (c) Commodity rates. In each of the States there is a number—ranging from 8 in Victoria to 15 in Tasmania—of different classes of freight. Most of the mileage rates are based upon a tapering principle, i.e., a lower charge per ton-mile is made for a long haul than for a short haul; but for some classes of freight there is a fixed rate per mile irrespective of distance. District rates are charged between specified stations and are somewhat lower than the mileage rates. In addition to the ordinary classification of freights under class (a), certain commodities, such as wool, grain, agricultural produce, and crude ores, are given under class (c) special rates, lower than the mileage rates.

Space will not permit of exhibiting a complete analysis of goods rates in the several States. As an indication of the range and amount of such rates the subjoined tables are given. The first table shews for each State the truck-load rates charged for hauls of different distances in respect of agricultural produce not otherwise specified; these special rates are here given for this class of produce, since it is generally forwarded in truck-loads.

### RATES FOR AGRICULTURAL PRODUCE IN TRUCK-LOADS ON STATE RAILWAYS, 1917.

State.	Charge per Ton in Truck-loads for a Haul of—					
	50 Miles.	100 Miles.	200 Miles.	300 Miles.	400 Miles.	500 Miles.
New South Wales ...	s. d. 5 6	s. d. 8 3	s. d. 10 5	s. d. 11 7	s. d. 12 6	s. d. 13 2
Victoria ...	6 2	9 8	12 8	14 8	16 6	18 4
Queensland ...	4 10	9 2	11 0	12 0	13 0	14 0
South Australia <sup>1</sup> ...	6 9	9 8	14 3	18 10	23 5	28 0
Western Australia ...	6 3	8 11	12 1	17 0	22 0	24 0
Tasmania ...	7 1	11 3	12 6	...	...	...
Average ...	6 1	9 6	12 2	14 10	17 6	19 6
Average per ton-mile	d. 1.46	1.14	0.73	0.59	0.52	0.47

1. Wheat is carried at a lower rate than that specified above for agricultural produce.

The next table shews for each State the ordinary mileage rates charged per ton for hauls of different distances in respect of (a) the highest-class freight, and (b) the lowest-class freight:—

### ORDINARY GOODS MILEAGE RATES ON STATE RAILWAYS, 1917.

State.	Charge per Ton for a Haul of—					
	50 Miles.	100 Miles.	200 Miles.	300 Miles.	400 Miles.	500 Miles.
<b>HIGHEST-CLASS FREIGHT.</b>						
New South Wales ...	s. d. 27 10	s. d. 54 4	s. d. 94 8	s. d. 119 11	s. d. 130 0	s. d. 140 1
Victoria ...	24 9	48 9	92 0	125 9	154 9	183 6
Queensland ...	44 2	80 7	145 2	<sup>1</sup> 209 9	<sup>1</sup> 242 0	<sup>1</sup> 255 7
South Australia ...	29 10	57 4	107 9	148 1	183 4	213 7
Western Australia ...	41 1	71 1	125 10	171 9	209 4	240 8
Tasmania ...	33 9	54 0	100 0	...	...	...
Average ...	33 8	61 1	110 11	155 1	183 11	206 8
Average per ton-mile	d. 8.08	7.32	6.65	6.20	5.52	4.96
<b>LOWEST-CLASS FREIGHT.</b>						
New South Wales ...	s. d. 4 0	s. d. 5 2	s. d. 6 0	s. d. 7 9	s. d. 9 10	s. d. 11 11
Victoria ...	3 2	4 8	7 0	9 4	10 2	11 2
Queensland ...	4 10	9 2	15 9	20 1	24 6	28 10
South Australia ...	3 8	6 11	11 0	12 4	14 0	15 8
Western Australia ...	5 0	8 4	14 2	19 2	23 4	27 6
Tasmania ...	2 10	5 7	8 6	...	...	...
Average ...	3 11	6 8	10 5	13 9	16 4	19 0
Average per ton-mile	d. 0.94	0.80	0.62	0.55	0.49	0.46

1. Maximum freight on highest class goods to Western stations is 200 shillings per ton.



The classification of commodities varies in the several States. Generally, the highest-class freight includes expensive, bulky, or fragile articles, while the lowest-class comprises many ordinary articles of merchandise, such as are particularly identified or connected with the primary industries of each State.

In New South Wales, for example, the highest-class freight comprises such articles as boots, drapery, drugs, groceries, furniture, liquors, crockery and glassware, cutlery, ironmongery, confectionery, and carpets. In the same State the lowest-class freight includes agricultural produce, ores, manures, coal, coke, shale, firewood, limestone, stone, slates, bricks, screenings, rabbit-proof netting, timber in logs, and posts and rails.

18. **Numbers and Description of Rolling Stock, 1916-17.**—The following table shews the rolling stock in use on the State Government railways in each State, classified according to gauge:—

**ROLLING STOCK ON STATE GOVERNMENT RAILWAYS IN EACH STATE,  
CLASSIFIED ACCORDING TO GAUGE, 1916-17.**

STATE.	GAUGE.					Total.		
	5 ft. 3 in.	4 ft. 8½ in.	3 ft. 6 in.	2 ft. 6 in.	2 ft. 0 in.			
LOCOMOTIVES.								
New South Wales	...	...	1,275	...	...	...	1,275	
Victoria...	...	...	1,795	...	17	...	812	
Queensland	...	...	...	657	...	4	661	
South Australia	...	...	244	241	...	...	485	
Western Australia	...	...	...	424	...	...	424	
Tasmania	...	...	...	73	...	7	80	
Total	...	...	1,039	1,275	1,395	17	11	3,737
PASSENGER VEHICLES.								
New South Wales	...	...	1,624	...	...	...	1,624	
Victoria...	...	...	1,570	...	34	...	1,604	
Queensland	...	...	...	758	...	5	763	
South Australia	...	...	364	137	...	...	501	
Western Australia	...	...	...	378	...	...	378	
Tasmania	...	...	...	167	...	6	173	
Total	...	...	1,934	1,624	1,440	34	11	5,043
VEHICLES, OTHER THAN PASSENGER.								
New South Wales	...	...	22,373	...	...	...	22,373	
Victoria...	...	...	19,905	...	252	...	20,157	
Queensland	...	...	...	13,916	...	119	14,035	
South Australia	...	...	4,082	5,505	...	...	9,587	
Western Australia	...	...	...	10,081	...	...	10,081	
Tasmania	...	...	...	1,721	...	77	1,798	
Total	...	...	23,987	22,373	31,223	252	196	78,031

1. Including three motor coaches, one steam and two gasoline. 2. Including one gasoline motor coach. 3. Including seven rail and two road motors. 4. Including three motor coaches, two steam and one gasoline.

19. **Number of Railway Employees.**—The following table shews the number of employees in the Railway Departments of each State in the year 1901 and in each year from 1912 to 1917 inclusive, classified according to (a) salaried staff, and (b) wages staff.

From these figures it will be seen that there has been a steady increase in the number of persons engaged in the Railway Departments of the several States. During the period from 1901 to 1917, the total has increased from 42,270 to 86,860—an increase of 44,590, or over 105 per cent. The largest numerical increase for the individual States was that of New South Wales, viz., 22,197. It will be observed, however, that the numbers of employes in 1916-17 were less in all the States, excepting Queensland, than they were in the previous year, the difference amounting to 6716.

Separate returns for salaried and wages staff are not available for South Australia prior to 1916-17; the number of salaried staff is therefore included in the wages staff.

**STATE RAILWAYS.—NUMBER OF EMPLOYEES IN RAILWAY DEPARTMENTS,  
1901 and 1912-17.**

State.	1900-1.		1912-13.		1913-14.		1914-15.		1915-16.		1916-17.	
	Salaried Staff.	Wages Staff.	Salaried Staff.	Wages Staff.	Salaried Staff.	Wages Staff.	Salaried Staff.	Wages Staff.	Salaried Staff.	Wages Staff.	Salaried Staff.	Wages Staff.
New South Wales	1,372	11,747	3,180	28,566	3,422	31,810	3,649	33,096	4,148	34,634	4,590	30,726
Victoria	1,432	10,524	2,471	21,115	2,598	22,169	2,661	24,314	2,428	20,500	2,344	17,126
Queensland	994	4,633	2,136	8,114	2,301	8,502	2,403	8,286	2,889	9,877	3,024	10,794
South Australia <sup>2</sup>	...	3,855	...	8,754	...	8,995	...	10,162	...	10,460	1,057	9,241
Western Australia	876	5,407	1,016	6,734	1,079	6,913	1,054	7,093	1,011	6,204	961	5,623
Tasmania	178	1,252	204	1,131	224	1,180	218	1,277	222	1,203	233	1,151
All States	4,852	37,418	9,007	74,414	9,624	79,569	9,985	84,248	10,698	82,878	12,209	74,651

1. Exclusive of gate-keepers with free house only. 2. Prior to 1916-17, separate returns for salaried and wages staffs are not available; the number of salaried staff in the earlier years is included with the wages staff.

**20. Accidents.—Number of Killed and Injured.**—The subjoined table gives particulars of the number of persons killed and injured through train accidents and the movement of rolling stock on the Government railways in each State for the year 1900-1, and for each of the years 1912-13 to 1916-17 inclusive:—

**STATE RAILWAYS.—NUMBER OF PERSONS KILLED AND INJURED,  
1901 and 1912-17.**

State.	1900-1.		1912-13.		1913-14.		1914-15.		1915-16.		1916-17.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
New South Wales	1	1	84	582	112	570	78	645	87	710	63	572
Victoria	45	371	36	723	45	473	45	409	54	360	32	465
Queensland	13	100	27	349	32	454	30	102	26	181	30	280
South Australia	8	50	18	224	19	202	20	172	14	193	11	247
Western Australia	25	205	15	139	25	154	14	131	18	131	20	106
Tasmania	1	8	...	43	1	42	...	39	10	89	1	4
All States	...	...	180	2,060	234	1,895	190	1,498	209	1,664	157	1,674

1. Not available. 2. Including all accidents which occurred on railway premises as well as those caused through train accidents and movement of rolling stock.

**(D) Graphical Representation of Government Railway Development.**

**1. General.**—Its railways are so important a factor in the development of Australia that it has been deemed desirable to graphically represent the main facts of their progress from 1860 onwards. To this end the graphs shewn on pages 654 to 656 have been prepared. The distribution of the railways is shewn on the map on page 653.

2. **Capital Cost and Mileage Open** (page 654).—The graph shows that the ratio between these elements was, naturally enough, very variable from 1860 to 1870, consequent upon progressive decrease in cost of construction. It then became subject to a more regular change, implying reduction of average cost, though in recent years a slight increase has been in evidence.

3. **Cost per Mile Open**.—The fluctuations in cost per mile open from 1860 are clearly indicated by the graph on page 654. In 1855 the cost per mile open was no less than £28,430; by 1858 it had fallen to £17,752, when it rose again to a maximum of £35,958 in 1862. It then diminished rapidly till 1885—when it reached £10,074 per mile—rose to £10,244 in 1886, then fell slowly till 1888, when it amounted to £10,092 per mile. Again rising, this rate attained to £10,481 in 1892, since when it has, on the whole, been declining, reaching its lowest value, £9465, in 1911. In 1912, 1913, and 1914 it rose to £9544, £9665, and £9820 respectively, but fell in 1915 to £9632. In 1916 it rose to £9895, and in 1917 was £9901.

4. **Gross Revenue**.—This graph (page 654) exhibits considerable irregularities, the most striking of which are the maxima at 1892, 1902, 1914 and 1916. The fall commencing in 1892 was in consequence partly of the commercial crisis and partly of the then droughty conditions of several of the States, while that of 1902-3 was due to drought. In the latter case the recovery was very rapid, and there has been a continuous rise up to the year 1914. In 1915, there was a fall amounting to £1,016,421. In 1916, the increase over 1915 was £1,260,646, while in 1917 there was an increase of £813,479 over the previous year.

5. **Working Expenses**.—In this case the graph (page 654) has the same characteristics as those of gross revenue. It should be noted, however, that working expenses have been increasing during the last three years at a greater rate than gross revenue, owing to increases in wages and the higher cost of materials.

6. **Net Revenue**.—This graph (page 654) shews a fairly constant rate of increase up to 1900. Thence to 1903 there was a continuous fall, which was followed by a rapid rise to 1907. In 1911 and 1914 there were maxima, followed by a fall in 1915 and a rise in 1916. In 1917 there was a slight fall.

7. **Percentage of Working Expenses on Gross Revenue**.—This is shewn for each State and for the Commonwealth, from the year 1855, on page 655. The curve for the Commonwealth shews considerable fluctuations, but points also to the fact that, although a slight rise occurred in 1908, there was from 1903 to 1907 a rapid, and therefore very satisfactory, decline in the percentage of working expenses to gross revenue; since 1907, however, there has been a steady increase up to 1915. In 1916 the percentage slightly declined, but rose again in 1917. In the case of the individual States it will be seen that the curves shew considerable fluctuations, particularly in the early years of the period under review.

8. **Percentage of Net Revenue on Capital Cost**.—For the Commonwealth and States, from the year 1855, this graph is shewn on page 656. After exhibiting somewhat remarkable oscillations in the earlier years, and less marked ones between 1885 and 1900, and also a rapid fall to 1903, the curve for the Commonwealth from that year shews a well-marked increase until the year 1908, a slight fall occurring in that year and in 1909. Maxima were reached in 1865, 1877, 1881, 1907, and 1911—viz., 3.44, 3.71, 4.12, 4.37 and 4.46 per cent. Since 1911 there has been, with one exception in 1914, a continuous fall.

For the individual States the results are in general very satisfactory up to 1911. The greatest maximum percentage attained by each of the States in any year during the period under review is as follows:—New South Wales 5.31 in 1881, Victoria 4.18, Queensland 4.51, and South Australia 6.47 in 1911, Western Australia 11.48 in 1896, and Tasmania 2.49 in 1913. Since 1911 (1913 in the case of Tasmania) the States have shewn varying and declining rates. The effect of the drought of 1915 is discernible, also the rise of wages and higher cost of materials, to which allusion has already been made.

The remarkable maximum for Western Australia in 1896 is consequent upon the large use made of the railways at the time of the development of the Western Australian goldfields.

9. **General Indications of Graphs.**—Reviewing the cost of railways, as a whole, it may be noted that at the undermentioned dates the average cost per mile open was as follows:—

**STATE RAILWAYS.—AVERAGE COST PER MILE OF LINE OPEN, 1857 to 1917.**

**COMMONWEALTH.**

Date ... ..	1857.	1867.	1877.	1887.	1897.	1907.	1917.
	£	£	£	£	£	£	£
Cost per mile ...	18,462	21,775	13,244	10,106	9,818	9,620	9,901

While the sinister influence of the drought of 1902 is strikingly shewn in the curves (a) by the fall in the gross and net revenue in 1902-3, (b) by the fall in the percentage of net revenue on capital cost, and (c) by the increase of working expenses on gross revenue, the rapidity of recovery is even more striking, and goes to indicate the great elasticity of the economic condition of the Commonwealth. Although the percentage of net revenue on capital cost during the year 1916-17 has been exceeded in previous years, nevertheless it is satisfactory that the State Government railways, necessarily constructed largely in accordance with a policy of widespread development of Australia's resources rather than as mere commercial enterprises, and costing so large a sum as £204,202,437 for construction and equipment up to the 30th June, 1917, should yield a return of no less than 2.94 per cent. It should be mentioned that the graphs for the Commonwealth include the Federal railways.

**(E.)—Government Railways Generally.**

1. **Rolling Stock.**—In the following table particulars of the numbers of the rolling stock employed on both the Federal and State Government railways are set out, classified according to gauge, as at the 30th June in the years 1901, 1906, 1911, and 1917 respectively, together with the percentage of the numbers for each gauge on the total for the mainland. For geographical reasons the figures for Tasmania are shewn separately from those for the mainland.

**ROLLING STOCK EMPLOYED ON THE FEDERAL AND STATE RAILWAYS  
AS AT 30th JUNE, 1901, 1906, 1911, and 1917.**

**LOCOMOTIVES.**

Gauge.	1901.		1906.		1911.		1917.	
	No.	%	No.	%	No.	%	No.	%
<b>Mainland—</b>								
5 ft. 3 in.	692	35.36	663	30.48	705	26.82	1,039	27.99
4 „ 8½ „	495	25.29	655	30.12	903	34.35	1,317	35.48
3 „ 6 „	765	39.09	850	39.08	1,011	38.45	1,335	35.96
2 „ 6 „	5	0.26	7	0.32	10	0.38	17	0.46
2 „ 0 „	...	...	...	...	...	...	4	0.11
<b>Total ...</b>	<b>1,957</b>	<b>100.00</b>	<b>2,175</b>	<b>100.00</b>	<b>2,629</b>	<b>100.00</b>	<b>3,712</b>	<b>100.00</b>
<b>Tasmania—</b>								
3 ft. 6 in.	64	...	69	...	72	...	73	...
2 „ 0 „	7	...	7	...	7	...	7	...
<b>Grand total ...</b>	<b>2,028</b>	<b>...</b>	<b>2,251</b>	<b>...</b>	<b>2,708</b>	<b>...</b>	<b>3,792</b>	<b>...</b>

## ROLLING STOCK EMPLOYED ON THE FEDERAL AND STATE RAILWAYS

(Continued).

## PASSENGER VEHICLES.

Gauge.	1901.		1906.		1911.		1917.	
	No.	%	No.	%	No.	%	No.	%
Mainland—								
5 ft. 3 in.	1,358	49.58	1,438	47.59	1,597	42.41	1,934	39.39
4 " 8½ "	610	22.27	713	23.59	1,136	30.16	1,660	33.81
3 " 6 "	761	27.78	859	28.42	1,012	26.87	1,277	26.01
2 " 6 "	10	0.37	12	0.40	21	0.56	34	0.69
2 " 0 "	...	...	...	...	...	...	5	0.10
Total ...	2,739	100.00	3,022	100.00	3,766	100.00	4,910	100.00
Tasmania—								
3 ft. 6 in.	163	...	176	...	170	...	167	...
2 " 0 "	8	...	6	...	6	...	6	...
Grand total ...	2,910	...	3,204	...	3,942	...	5,083	...

## VEHICLES, OTHER THAN PASSENGER.

Gauge.	1901.		1906.		1911.		1917.	
	No.	%	No.	%	No.	%	No.	%
Mainland—								
5 ft. 3 in.	12,209	31.06	13,282	29.90	15,451	27.82	23,987	31.03
4 " 8½ "	11,540	29.35	13,010	29.29	17,112	30.81	23,099	29.88
3 " 6 "	15,481	39.38	18,026	40.59	22,793	41.03	29,849	38.61
2 " 6 "	82	0.21	99	0.22	190	0.34	252	0.33
2 " 0 "	...	...	...	...	...	...	119	0.15
Total ...	39,312	100.00	44,417	100.00	55,546	100.00	77,306	100.00
Tasmania—								
3 ft. 6 in.	1,389	...	1,525	...	1,618	...	1,721	...
2 " 0 "	50	...	61	...	71	...	77	...
Grand total ...	40,751	...	46,003	...	57,235	...	79,104	...

In the sixteen years under review the percentages of the numbers of locomotives for each gauge on the total number of locomotives on all Government railways on the

mainland have undergone the following changes: on the 5-ft. 3-in. gauge the percentage has fallen by 7.37 per cent., the 4-ft. 8½-in. gauge increased by 10.19, and the 3-ft. 6-in. gauge fallen by 3.13 per cent.

As regards passenger vehicles the alterations are as follow: on the 5-ft. 3-in. gauge the percentage has fallen by 10.19 per cent., the 4-ft. 8½-in. gauge increased by 11.54 and the 3-ft. 6-in. gauge fallen by 1.77 per cent.

In the case of vehicles other than passenger the changes have been small, the 5-ft. 3-in. gauge percentage having fallen 0.03, the 4-ft. 8½-in. gauge risen by 0.53 and the 3-ft. 6-in. gauge fallen by 0.77 per cent.

**2. Railway Mileage Open for Traffic.**—The Government railway mileages open for traffic, classified according to gauge, as at the 30th June in each of the years 1901, 1906, 1911, and 1917, are set out in the following table, which gives as well the percentages of each mileage on the total on the mainland, the figures for Tasmania being shewn separately, as in the case of the preceding table relating to rolling stock:—

**RAILWAY (ROUTE) MILEAGE OF THE STATE AND FEDERAL RAILWAYS, CLASSIFIED  
ACCORDING TO GAUGE, AS AT 30th JUNE, IN EACH OF THE YEARS 1901,  
1906, 1911, and 1917, WITH PERCENTAGES ON TOTAL FOR MAINLAND.**

Gauge.	1901.		1906.		1911.		1917.	
	Miles.	%	Miles.	%	Miles.	%	Miles.	%
<b>Mainland—</b>								
5 ft. 3 in.	3,696	30.49	3,849	28.67	4,023	25.77	5,011.81	23.80
4 " 8½ "	2,806	23.15	3,350	24.96	3,721	23.84	5,360.13	25.45
3 " 6 "	5,571	45.96	6,172	45.98	7,742½	49.61	10,536.74	50.03
2 " 6 "	48	0.40	53	0.39	122	0.78	121.90	0.58
2 " 0 "	...	...	...	...	...	...	29.35	0.14
<b>Total ...</b>	<b>12,121</b>	<b>100.00</b>	<b>13,424</b>	<b>100.00</b>	<b>15,608½</b>	<b>100.00</b>	<b>21,059.93</b>	<b>100.00</b>
<b>Tasmania—</b>								
3 ft. 6 in.	439	...	440	...	449	...	558.08	...
2 " 0 "	19	...	23	...	23½	...	23.57	...
<b>Grand total</b>	<b>12,579</b>	<b>...</b>	<b>13,887</b>	<b>...</b>	<b>16,081</b>	<b>...</b>	<b>21,641.58</b>	<b>...</b>

From the above table it will be seen that in the sixteen years from 1901 to 1917 the 5-ft. 3-in. gauge percentage has fallen by 6.69 per cent., the 4-ft. 8-in. gauge increased by 2.30 per cent., and the 3-ft. 6-in. gauge increased by 4.07 per cent.

**3. Summary of Working of Federal and State Government Railways.**—In the following table a summary is given of the working of all Government railways, both Federal and State, for the year ended 30th June, 1917, fuller particulars of which have been given in the sections B and C of this chapter:—

**SUMMARY OF THE WORKING OF THE FEDERAL AND STATE GOVERNMENT  
RAILWAYS FOR THE YEAR ENDED 30th JUNE, 1917.**

Particulars.		Federal Railways.	State Railways.	Total for Com- monwealth.
Total mileage open ... Miles		1,640.66	20,000.92	21,641.58
Average miles open during the year ... "		1,535	19,624.00	21,159.00
Total train mileage ... "		914,241	56,363,153	57,277,394
Total cost of construction of lines open ... £		10,077,545	204,202,437	214,279,982
Cost per mile ... £		6,141	10,210	9,901
Gross revenue ... £		386,466	22,656,187	23,042,653
Working expenses ... £		434,265	16,657,981	17,092,246
Percentage of working expenses on gross revenue ... %		112.37	73.53	74.18
Net revenue ... £		— 47,799	5,998,206	5,950,407
Interest payable (exclusive of Trans- Australian and Federal Territory lines) ... £		131,615	7,865,153	7,996,768
Number of passenger journeys ... No.		113,772	267,434,747	267,448,519
Tonnage of goods and live stock carried ... Ton		617,365	27,354,568	27,971,933
Number of employees at 30th June, 1917—				
Salaried ... No.		173	12,209	12,382
Wages ... "		3,142	74,651	77,793
Number of persons killed and injured during the year through train accidents and movement of rolling stock—				
Killed ... "		1	157	158
Injured ... "		43	1,674	1,717

1. Exclusive of Oodnadatta line.

4. **Government Railway Facilities.**—On page 660 *ante* the population per mile of line open for general traffic is given in respect of the States' railways for each State. In the following table is given the mileage of all Government railways, State and Federal, in each State and Territory, per 1000 of population :—

**MILEAGE OF ALL GOVERNMENT RAILWAYS, STATE AND FEDERAL, PER 1000 OF  
POPULATION IN EACH STATE AND TERRITORY AS AT 30th JUNE, 1917.**

State or Territory.	Population 30th June, 1917.	Length of Line Open (Route).			Mileage per 1000 of Population.
		State.	Federal.	Total.	
		Miles.	Miles.	Miles.	
New South Wales ...	1,868,586	4,437.08	...	4,437.08	2.37
Victoria ...	1,402,650	4,122.64	...	4,122.64	2.94
Queensland ...	681,302	5,213.79	...	5,213.79	7.65
South Australia ...	429,890	2,220.66	982.16	3,202.82	7.45
Western Australia ...	308,530	3,425.10	454.00	3,879.10	12.57
Tasmania ...	197,337	581.65	...	581.65	2.95
Northern Territory ...	5,043	...	199.56	199.56	39.57
Federal Territory ...	2,556	...	4.94	4.94	1.93
 Commonwealth ...	 4,895,894	 20,000.92	 1,640.66	 21,641.58	 4.42

## (F.)—Private Railways.

1. **Total Mileage Open, 1916-17.**—As has been stated in a previous part of this Section (see A. 8) a number of private railway lines have from time to time been constructed in the Commonwealth. By far the greater proportion of such lines, however, has been laid down for the purpose of hauling timber, sugar cane, coal, or other minerals, and is not generally used for the conveyance of passengers or for public traffic; in many cases the lines are often practically unballasted and are easily removable, running through bush and forest country in connection with the timber and sugar-milling industries, and for conveying firewood for mining purposes. Many of these lines may perhaps be said to be rather of the nature of tramways than of railways. Private railways referred to herein include (a) lines open to the public for general passenger and goods traffic; and (b) branch lines from Government railways and other lines which are used for special purposes and which are of a permanent description. Other lines are referred to in the part of this Section dealing with Tramways (see § 3, *Tramways*).

The following table gives particulars of private railways in the Commonwealth open for traffic during 1916-17. A classification of these lines according to their gauge has already been given (see page 661).

## MILEAGE OF PRIVATE RAILWAYS OPEN, 1916-17.

Particulars.	N.S.W.	Victoria.	Q'land.	S.A.	W.A.	Tas.	C'wealth.
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
For general traffic ...	183.08	24.94	529.62	...	277.00	162.19	1,176.83
For special purposes ...	161.65	28.83	958.91	39.00	722.31	39.80	1,950.50
Total ...	344.73	53.77	1,488.53	39.00	999.31	201.99	3,127.33

2. **Classification of Private Railways.**—The subjoined statement gives particulars regarding private railways, so far as returns are available, in each State for the year 1916-17. In this statement the lines inset are sub-branches from the main branches specified.

## CLASSIFICATION OF PRIVATE RAILWAYS IN AUSTRALIA, 1916-17.

## NEW SOUTH WALES.

Railway Lines.	Length and Gauge.				Nature of Traffic Carried, etc.
	5 ft.3 in.	4 ft. 8½ in.	3 ft.6 in.	2 ft.0 in.	
1. MAIN SUBURBAN LINE, N.S.W. GOVT. RLYS.—	Miles.	Miles.	Miles.	Miles.	
Two Branch lines ...	...	1.50	...	...	Goods
One Branch line (Carlingford line) ...	...	0.98	...	...	"
Total ...	...	2.48	...	...	
2. SOUTH-COAST LINE, N.S.W. GOVT. RLYS.—					
Bulli Coal Co. ...	...	2.64	...	...	Coal
Bellambi Coal Co. ...	...	3.06	...	...	"
South Bulli Coal Co. ...	...	2.88	...	...	"
Corrimal-Balgownie Colliery ...	...	1.07	...	...	"
Mount Keira Colliery ...	...	1.65	...	...	"
Mount Kembla Coal Co. ...	...	7.43	...	...	"
Hoskin's Wongawilli Colliery ...	...	2.89	...	...	"
Mount Pleasant Colliery ...	...	...	3.50	...	"
Two other branches ...	...	1.37	...	...	"
Total ...	...	22.89	3.50	...	



CLASSIFICATION OF PRIVATE RAILWAYS IN AUSTRALIA, 1916-17 (Continued).  
NEW SOUTH WALES (Continued).

Railway Lines.	Length and Gauge.				Nature of Traffic Carried, etc.
	5ft.3in.	4ft.8in.	3ft.6in.	2ft.0in.	
3. SOUTHERN LINE, N.S.W. GOVT. RLYS.—					
Warwick Farm ... ..	...	0.82	...	...	Racecourse traffic
Goondah-Burrinjuck <sup>1</sup> ... ..	...	...	...	26.25	General
Total ... ..	...	0.82	...	26.25	
4. WESTERN LINE, N.S.W. GOVT. RLYS.—					
Prospect Gravel Co., two branches ... ..	...	4.54	...	...	Metal
Commonwealth Oil Corporation's line from Newnes Junction ... ..	...	33.00	...	...	General
Three Colliery branches at Eskbank ... ..	...	1.85	...	...	Coal
Two branches at Eskbank ... ..	...	1.04	...	...	Goods
Two Colliery branches at Lithgow ... ..	...	1.25	...	...	Coal
Cadia branch ... ..	...	10.79	...	...	Ore and goods
Branch Colliery line at Irondale ... ..	...	0.47	...	...	Coal
Commonwealth Portland Cement Co.'s branch lines ... ..	...	5.00	...	...	Goods
Branch Colliery line at Cullen Bullen ... ..	...	1.40	...	...	Coal
Two branch lines to Mines ... ..	...	2.70	...	...	Ore
Total ... ..	...	63.04	...	...	
5. NORTHERN LINE, SYDNEY TO NEW CASTLE, N.S.W. GOVT. RLYS.—					
Seven branch Colliery lines, Fassifern, Teralba, Cockle Creek, South Wallsend Junction and Adamstown ... ..	...	7.60	...	...	Coal
West Wallsend and Seaham Colliery Branch line ... ..	...	5.75	...	...	General
Redhead Railway, Adamstown to Belmont ... ..	...	2.41	...	...	Coal
Four branch lines ... ..	...	9.09	...	...	General
Branch lines at Teralba and Sulphide Junction ... ..	...	2.91	...	...	"
Total ... ..	...	2.64	...	...	Gravel, coal and ore
5a. NORTHERN LINE, NEWCASTLE TO MURRUMBUNDI, N.S.W. GOVT. RLYS.—					
Newcastle Coal Mining Co. ... ..	...	3.82	...	...	Coal
Old Burwood Colliery ... ..	...	6.35	...	...	"
A.A. Co.'s Sea Pit ... ..	...	2.27	...	...	"
Lambton Colliery ... ..	...	2.18	...	...	"
Waratah Coal Co. ... ..	...	4.55	...	...	"
Newcastle Wallsend Coal Co. ... ..	...	4.56	...	...	"
Two branch lines ... ..	...	1.89	...	...	"
Six branch lines ... ..	...	5.13	...	...	Goods
Hexham-Minmi ... ..	...	6.08	...	...	General
Five branch lines ... ..	...	16.94	...	...	Coal
Ashton Fields Colliery ... ..	...	3.67	...	...	"
East Greta Rly., East Greta Junction to Stanford Merthyr ... ..	...	7.32	...	...	General
Two branch lines ... ..	...	1.74	...	...	Coal
Aberdare Rly., Aberdare Junction to Cessnock ... ..	...	12.08	...	...	General
Twelve branch lines ... ..	...	24.14	...	...	Coal
Rutherford Racecourse ... ..	...	0.87	...	...	Racecourse traffic
Six branch lines at Greta—Branxton, Rix's Creek, Rosedale Siding, and Nundah ... ..	...	5.21	...	...	Coal
Branch line at Temple Court ... ..	...	0.66	...	...	Goods
Three branch Colliery lines at Wilga, Curlewis and Gunnedah ... ..	...	7.29	...	...	Coal
Total ... ..	...	115.75	...	...	
6. SILVERTON TRAMWAY—					
Broken Hill and Cockburn ... ..	...	...	35.60	...	General
7. DENILQUIN-MOAMA LINE ... ..	45.00	...	...	...	"
Total for State, 344.73 miles. Total...	45.00	234.38	89.10	26.25	

1. Owned and worked by the Public Works Department.

CLASSIFICATION OF PRIVATE RAILWAYS IN AUSTRALIA, 1916-17 (Continued).  
VICTORIA.

Railway Lines.	Length and Gauge.		Nature of Traffic Carried, etc.
	5ft. 3in.	3ft. 0in.	
	Miles.	Miles.	
1. KERANG TO KOONDROOK TRAMWAY ... ..	13.94	...	General
2. ALTONA BAY RAILWAY— Williamstown Racecourse and pit at Altona ...	2.83	...	General
3. MCIVOR TIMBER AND FIREWOOD CO., TOOBORAC ...	26.00	...	Firewood
4. YARRA JUNCTION TO POWELLTOWN ... ..	...	11.00	General
Total for State, 53.77 miles.                      Total ...	42.77	11.00	

## QUEENSLAND.

Railway Lines.	Length and Gauge.			Nature of Traffic Carried, etc.
	3 ft. 6 in.	2 ft. 6 in.	2 ft. 0 in.	
BRANCHES FROM GOVERNMENT RAILWAYS—	Miles.	Miles.	Miles.	
1. SOUTH-COAST LINE—				
Beaudesert Tramway to Rathdowney and				
Tabooba Junction to Lamington...	33.00	...	...	General
Nerang Central Mill ... ..	...	...	11.00	Sugar
Blue Metal Co. ... ..	2.46	...	...	Mineral
Lahey's Ltd. from Canungra ... ..	14.50	...	...	Timber
Belmont Shire Council ... ..	4.39	...	...	General
Australian Meat Export Co. ... ..	1.64	...	...	Live stock & meat
Public Works Department... ..	0.28	...	...	Building materials
2. MAIN LINE—				
Mount Crosby Water Supply (Tivoli) ...	5.00	...	...	Water Conserva-
Fifteen Colliery Branches ... ..	13.12	...	...	Coal
Three Timber Branches ... ..	3.74	...	...	Timber
Redbank Freezing Works ... ..	0.45	...	...	Meat
Marburg Sugar Mill ... ..	1.04	...	0.50	Sugar
Five Branch Lines ... ..	1.25	...	...	Various
3. SOUTHERN LINE AND BRANCHES—				
Tannymorell Colliery ... ..	3.50	...	...	Coal
Queensland Cement and Lime Co. ...	3.90	...	...	Limestone
4. WESTERN LINE AND BRANCHES—				
Three Colliery Branches ... ..	1.44	...	...	Coal [produce
Munro's Tramway to Perseverance ...	...	10.00	...	Timber and farm-
Pechey's Siding ... ..	0.25	...	...	Timber
5. NORTH-COAST LINE—				
Buderim Tramway ... ..	...	7.00	...	General
Mapleton Tramway... ..	...	...	15.00	"
Moreton Central Sugar Mill ... ..	...	...	12.00	"
Mount Bauple Sugar Mill ... ..	9.44	...	8.00	Sugar
Maryborough Sugar Factory ... ..	0.31	...	...	"
Walkers' Limited ... ..	0.61	...	...	Ironwork
Harbours and Rivers Dept. (Urangan)	0.70	...	...	Building materials
Goodwood Sugar Mill ... ..	...	...	2.31	Sugar
Millaquin Sugar Mill and Refinery...	2.25	...	9.35	"
Woongarra Tramway ... ..	12.19	...	...	General
Qunaba Sugar Mill ... ..	...	...	10.47	Sugar
Doolbi Sugar Mill ... ..	...	...	14.00	"
Isis Central Sugar Mill ... ..	2.97	...	14.50	"
Childers Sugar Mill ... ..	...	...	33.75	"
Waterview Plantation ... ..	1.05	...	...	"
Miaara Sugar Mill ... ..	...	...	0.50	"
Fairymead Sugar Mill ... ..	7.17	...	2.40	"
Avondale Sugar Mill ... ..	3.39	...	...	"
Invicta Sugar Mill ... ..	8.70	...	14.50	General and sugar
Bingera Sugar Mill ... ..	8.50	...	26.50	Sugar
Gin Gin Sugar Mill ... ..	...	...	22.56	"
Three Colliery Lines ... ..	3.39	...	...	Coal
Ten Branch Lines ... ..	3.74	...	...	Various
6. CENTRAL LINE AND BRANCHES—				
Mount Morgan G.M. Co. (three branches)...	3.12	...	...	Minerals
Four Colliery Branches ... ..	2.52	...	...	Coal
Aramac Tramway from Barcaldine ...	41.00	...	...	General
Four Branch Lines... ..	2.53	...	...	Various
Treasury Department ... ..	1.00	...	...	Explosives

## CLASSIFICATION OF PRIVATE RAILWAYS IN AUSTRALIA, 1916-17 (Continued).

## QUEENSLAND (Continued).

Railway Lines.	Length and Gauge.			Nature of Traffic Carried, etc.
	3 ft. 6 in.	2 ft. 6 in.	2 ft. 0 in.	
<b>7. MACKAY LINE AND BRANCHES—</b>	Miles.	Miles.	Miles.	
Racecourse Central Mill (four branches) ...	0.90	...	5.00	Sugar
Melbourne-Mackay Sugar Co. ...	0.49	...	10.00	"
Pleystowe Central Mill ...	0.98	...	35.00	"
Marian Central Mill ...	0.50	...	37.50	"
Cattle Creek Central Mill ...	0.30	...	5.00	"
North Eton Central Mill ...	0.81	...	21.00	"
Homebush Sugar Mill ...	...	...	29.00	"
Farleigh Sugar Mill ...	...	...	40.00	"
Plane Creek Central Mill ...	0.30	...	44.50	"
Mackay Harbour Board ...	0.80	...	...	General
<b>8. BOWEN LINE—</b>				
Proserpine from Bowen ...	38.50	...	...	General
Proserpine Central Mill ...	...	...	50.00	Sugar and cane
<b>9. GREAT NORTHERN RAILWAY—</b>				
Kalamia Sugar Mill ...	...	...	17.50	Sugar
Pioneer and Inkerman Sugar Mills... ..	38.50	...	18.50	" [rals
Macgregor Tramway to Ballara ...	22.13	...	...	General and mine-
Five Meat Preserving Co.'s Lines ...	9.07	...	...	Meat & live stock
Ten Mineral Branches ...	11.54	...	4.00	Minerals
Drysdale Brothers ...	1.02	...	...	Meat & live stock
Townsville Jetty ...	0.75	...	...	General
Townsville Gas Co. ...	0.54	...	...	Coal and coke
<b>10. CAIRNS LINE AND BRANCHES—</b>				
Hambledon Sugar Mill ...	1.75	...	37.50	Sugar
Mulgrave Central Mill (three lines) ...	0.39	...	15.50	" etc.
Babinda Sugar Mill ...	0.50	...	27.00	"
Chillagoe Railway... ..	102.73	...	...	General
Stannary Hills Tramway ...	...	...	21.00	"
Irvinebank Tramway ...	...	...	14.00	"
Etheridge Railway ...	143.00	...	...	"
Three Branch Lines (on ditto) ...	4.79	...	...	Various
Harbour Board Lines ...	0.36	...	...	General
<b>11. GERALDTON-MOURLYAN LINE—</b>				
Goondi Sugar Mills ...	...	...	35.25	Sugar
South Johnstone Sugar Mill ...	...	...	35.50	"
Mourilyan Sugar Mill ...	...	...	21.00	"
Lines not connected with Govt. Railways—				
Victoria Sugar Mill (Ingham) ...	...	...	69.75	General and sugar
Macnade Sugar Mill do ...	...	...	52.50	" "
Port Douglas to Mossman & Mowbray River	...	...	19.00	General
Mossman Central Mill ...	...	...	24.00	Sugar
<b>Total for State, 1488.53 miles. Total...</b>	<b>585.19</b>	<b>17.00</b>	<b>886.34</b>	

## SOUTH AUSTRALIA.

Railway Lines.	Length and Gauge.		Nature of Traffic Carried, etc.
	3ft. 6 in.	2ft. 0 in.	
<b>BROKEN HILL PROPRIETARY CO.'S LINE—</b>	Miles.	Miles.	
Iron Knob to Hummock's Hill, Spencer's Gulf ...	34.00	...	Carriage of ironstone.
<b>MARION BAY LINE—</b>			
Jetty to mine ...	...	5.00	Mining products.
<b>Total for State, 39.00 miles Total ...</b>	<b>34.00</b>	<b>5.00</b>	

## CLASSIFICATION OF PRIVATE RAILWAYS IN AUSTRALIA, 1916-17 (Continued).

## WESTERN AUSTRALIA.

Railway Lines.	Length and Gauge.			Nature of Traffic Carried, etc.
	3ft.6 in.	2ft.0 in.	1ft.8 in.	
1. MIDLAND RAILWAY— Joining Govt. lines at Midland Junction & Walkaway	Miles. 277.00	Miles. ...	Miles. ...	General
2. W.A. GOLDFIELDS FIREWOOD SUPPLY Co.'s LINE— From Kurrawang into bush ...	102.00	...	...	Firewood
3. KALGOORLIE AND BOULDER FIREWOOD Co.'s LINE— Goodwood railway, from Lake Side into bush ... Lancefield railway into bush ...	35.00	...	...	"
4. W.A. TIMBER AND FIREWOOD Co. LTD. LINE— Kurramia railway, from Kalgoorlie-Kanowna railway into bush ...	74.00	...	...	"
5. SONS OF GWALIA GOLD MINING Co.'s LINE— Railway into bush ...	...	...	27.00	"
6. MURCHISON FIREWOOD Co.'s LINE— Nallan wood railway, from Nallan siding into bush	28.50	...	...	"
7. KARRI TIMBER Co.— W.A. Jarrah Sawmills Line ...	43.00	...	...	Timber
8. TIMBER CORPORATION Co.'s LINE— From Greenbushes to mills and into bush ...	17.50	...	...	"
9. S. WEST TIMBER HEWERS' Co-OP. SOCIETY'S LINE— From Holyoake into bush ...	18.00	...	...	"
10. MILLAR'S TIMBER TRADING Co.'s LINES— Upper Darling Range railway, from Pickering Brook to Canning mills and bush ... Jarrahdale and Rockingham railway, from Mundijong to Rockingham and bush ... Yarloop railway to mills and bush ... Morrington mills rly., from Wokalup to mills & bush ... Ferguson River railway, from Dardanup to mills and into bush ... Kirup saw mills into bush ... Marrinup saw mills into bush ... Jarrah Woods saw mills into bush	12.13 73.00 54.57 40.55 36.09 26.06 9.70 14.85	...	...	" " " " " " " "
11. BUNNING BROS. LTD. LINES— Argyle Mill ... Collie ... Preston Valley ... Perth Jarrah Lion Mills ... Wandoo Line, Muja ...	11.00 16.00 5.50 8.25 0.86	...	...	" " " " "
12. NORTH DANDALUP S.M. RAILWAY— To mill and bush ...	12.00	...	...	"
13. SWAN SAW MILL RAILWAY— From Lowden to mill and bush ...	11.00	...	...	"
14. BUCKINGHAM BROS. S.M. RAILWAY— From Muja to bush ...	4.50	...	...	"
15. WILGARRUP KARRI AND JARRAH Co.'s LINE— Railway into bush ...	8.25	...	...	"
16. WHIM CREEK RAILWAY TO BALLA BALLA ...	...	14.00	...	Copper ore
Total for State, 999.31 miles ... Total ...	938.31	34.00	27.00	

## TASMANIA.

Railway Lines.	Length and Gauge.		Nature of Traffic Carried, etc.
	3ft. 6in.	2ft. 0in.	
1. EMU BAY RAILWAY Co.'s LINES— Burnie to Waratah ... Guildford to Zeehan ... Rayna to Dundas ...	Miles. 47.66 49.68 5.60	Miles. ... ... ...	General " "
2. MOUNT LYELL MINING AND RAILWAY Co.'s LINES— Regatta Point to Queenstown ... Gormanston to Kelly Basin ...	21.45 27.80	... ...	" "
3. HUON TIMBER Co.'s LINE ...	38.05	...	Timber
4. ZEEHAN TRAM Co.'s LINE— Emu Bay railway to British Queen ...	...	1.75	Minerals and occasion-
5. MAGNET SILVER MINING Co.'s LINES— Magnet Junction to Magnet ...	...	10.00	ally passengers Minerals and passengers
Total for State, 201.99 miles ... Total ...	190.24	11.75	

## SUMMARY OF MILEAGE OF PRIVATE RAILWAYS ACCORDING TO GAUGE, 1916-17.

## PRIVATE RAILWAYS.

State.	Gauge.							Total for States.
	5 ft. 3 in.	4 ft. 6 in.	3 ft. 6 in.	3 ft. 0 in.	2 ft. 6 in.	2 ft. 0 in.	1 ft. 8 in.	
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
New South Wales ...	45.00	234.38	39.10	...	...	26.25	...	344.73
Victoria ...	42.27	...	...	11.00	...	...	...	53.77
Queensland ...	...	...	585.19	...	17.00	886.34	...	1,488.53
South Australia ...	...	...	34.00	...	...	5.00	...	39.00
Western Australia ...	...	...	938.31	...	...	34.00	27.00	999.31
Tasmania ...	...	...	190.24	...	...	11.75	...	201.99
Total ...	87.77	234.38	1,786.84	11.00	17.00	963.34	27.00	3,127.33

3. New South Wales.—In this State the mileage of private railways open to the public for general traffic at the end of 1916 was 183.08, and of lines used for special purposes, 161.65 miles. Most of these lines were constructed primarily for the purpose of conveying coal from the mines to the Government railway systems. Particulars for the year 1916 of the operations of lines open for general traffic are given, so far as available, in the table on page 712.

(i.) *Private Railways Open for General Traffic.* The most important of the lines open for general traffic are as follows:—(a) *The Deniliquin-Moama Line.* In 1874 permission was granted by the New South Wales Government to the Deniliquin and Moama Railway Company to construct a line forty-five miles long from Deniliquin, in the Riverina district, to Moama, connecting with the Victorian Railway system at the Murray Bridge, near Echuca. The line was opened in 1876, the land required being granted by the Government. (b) *The Cockburn-Broken Hill Line.* This line is owned by the Silverton Tramway Company. It was opened in 1888, and connects Broken Hill with the South Australian railway system, having a total length of 35.60 miles. (c) *East Greta Lines.* These lines, belonging to the East Greta Coal Mining Company, run from East Greta Junction, on the Northern line of the Government railways, to Stanford Merthyr, a distance of 7.32 miles, and from Aberdare Junction to Cessnock, 12.08 miles—a total of 19.40 miles. (d) *The New Redhead Coal Company's Railway.* The lines owned by this company branch from the Northern line of the Government railways, and run from Adamstown to Burwood Extended Colliery, thence to Belmont, and from Burwood Junction to Dudley Boundary and branches, a total distance of 12.00 miles. The lines are worked by the Railway Department, coal wagons being supplied in part by the coal companies using the line. The colliery companies using the line pay a way-leave for right to run their coal over the line, and the Railway Commissioners allow the New Redhead Company a proportion of the revenue from the passenger and goods traffic. (e) *The Seaham Coal Company's Railway.* This line runs from Cockle Creek to West Wallsend and Seaham Collieries, and has a total length of 5.75 miles. (f) *Hexham-Minmi Railway.* This line branches from the Northern line of the Government railways at Hexham, and has a length of 6.08 miles. (g) *The Commonwealth Oil*

*Corporation's Railway.* This line runs from Newnes Junction on the Great Western line of the Government railways to the company's refinery, a distance of 33 miles. The Shay geared type of locomotive is in use on this line. (h) *The Warwick Farm Line* is a short line, three-quarters of a mile in length, connecting the Government line near Liverpool with the Warwick Farm Racecourse. Government rolling-stock is used. (i) *The Goondah-Burrinjuck Line* is a line 26.25 miles in length built and worked by the Public Works department in connection with the dam in course of construction at Burrinjuck.

In addition to the lines referred to above, legislative sanction was obtained in 1890 for the construction of a private line from the flux quarries at Tarrawingee to the Broken Hill line, a distance of 40.09 miles. The line was purchased by the Government in 1901, and is operated by the Silverton Tramway Company under lease from the Chief Commissioner, who pays the working expenses and receives the ordinary earnings and one-half the net receipts on special and holiday traffic. The mileage of this line is included in that of the Government Railways.

4. **Victoria.**—In Victoria there are two private railways open for general traffic. (a) Kerang-Koondrook tramway, opened in 1889. The cost of construction of this line to the end of September, 1917, was £39,429, paid out of a loan advanced by the Victorian Government. The total length is 13.94 miles. The line is at present controlled by the Kerang Shire Council, but proposals have recently been made for its transfer to the Railway Department. (b) Yarra Junction to Powelltown. This line has a length of 11 miles, and is worked mainly for timber purposes.

A line running from Elsternwick to Oakleigh, a distance of about 5 miles, was constructed by a private company many years ago. It was never in general use, having only an occasional train running over it on special occasions, and has since been partially dismantled.

5. **Queensland.**—In this State private railways open for general traffic may be grouped under two heads:—(i.) Lines constructed primarily for mining purposes or for the transport of sugar-cane, and (ii.) Shire tramways.

(i.) *Mining Railways.* (a) *The Chillagoe Railway.* The most important of these is the Chillagoe railway, constructed under the Mareeba to Chillagoe Railway Act 1897, and opened in 1901. This line runs from Mareeba, on the Cairns railway, to Mungana, a distance of 102.73 miles. (b) *The Stannary Hills Line.* This line branches from the Chillagoe railway at Boonmoo and runs to Rocky Bluff, via Stannary Hills, a total distance of 21 miles. The gradients on this line, which has a gauge of 2 feet, range as high as 1 in 27, while the radius of some of the curves is as low as  $1\frac{1}{4}$  chains. An additional length of 8 miles has been surveyed with a view to extending the line.

(ii.) *Shire Tramways.* Under Part XV. of the Local Authorities Act of 1902 provision is made whereby not less than one-third of the ratepayers in any district may petition the local authority to apply to the Governor for the constitution of a tramway area. The Governor may define the area and may also approve of the plans and specifications of the proposed tramway. The amount which may be advanced by the Government for the construction or purchase of a tramway may not exceed a sum equal to £3000 for every mile of its length. As regards repayment of loans, no sum need be paid during the first three years, but after the expiration of that period the principal and interest must be repaid by half-yearly instalments on the basis provided for by the "Local Works Loans Act 1880 to 1899." For the purpose of raising the money to pay these instalments the local authority may levy a rate upon all ratable property within the tramway area. The money required for the tramway may be raised by the local authorities by the issue of debentures.

6. **South Australia.**—In this State there are no private railways open for general traffic. There is a private line owned by the Broken Hill Proprietary Company, running from Iron Knob to the seaboard near the head of Spencer's Gulf, a distance of 34 miles. The line is utilised for the carriage of ore for use in connection with the smelting works at Port Pirie and the steel works at Newcastle. There is also a line from Marion Bay, having a length of 5 miles, used for mining purposes.

7. **Western Australia.**—Owing to the Government's past difficulty in constructing lines urgently required for the development of the country, private enterprise was encouraged to undertake the work of construction on the land-grant principle, and two trunk lines were thus constructed. The greater part of the private lines now open, however, have been constructed in connection with the timber industry. (i.) *The Midland Railway.* This line is 277 miles in length, and runs from the Midland Junction, ten miles from Perth, to Walkaway, where it joins the Government line running to Geraldton. It was constructed under a concession of 12,000 acres of land per mile of line constructed, to be selected along the entire route of the railway. (ii.) *The Great Southern Railway.* This line, which was built by private enterprise under the land-grant system, is 242 miles in length, and was acquired by the Government by purchase on the 1st January, 1897. The total price paid, with all the interests of the private company and of the original concessionaire, was £1,100,000, which was divided by the Government for book-keeping purposes into £300,000 for the land and £800,000 for the railway. (iii.) *Millar's Timber Trading Company's Lines.* These lines have mostly been built under special timber concessions and leases. There were, at latest date available, in all eight lines situate in various parts of the State extending into the bush, whence logs are brought to the mills. The total length of these lines was approximately 265.95 miles. (iv.) *Other Lines.* There are also several other lines in various parts of the State used chiefly in connection with the timber industry. These are specified in the tabular statement on page 708.

8. **Tasmania.**—In this State there are three private lines open for general traffic, all of which are situated in the western part of the island.

(i.) *The Emu Bay Railway Company.* The lines owned by this company run from Burnie to Waratah, from Guildford to Zeehan, and from Rayna to Dundas, and have a total length of 102.94 miles.

(ii.) *The Mount Lyell Mining and Railway Company.* The Mount Lyell railway runs from Regatta Point, Strahan, to Queenstown, and the North Mount Lyell line from Kelly Basin to Linda. The former line, 21.45 miles in length, was constructed in 1895-6, while the latter line, 27.80 miles long, was taken over from the North Mount Lyell Copper Company on the amalgamation of the two companies in 1903. The line from Kelly Basin to Linda is now run only intermittently.

(iii.) *The Magnet Silver Mining Company's Railway.* This line runs from Magnet Junction, near Waratah, on the Emu Bay Company's line, to Magnet, a distance of 10 miles.

9. **Operations of Private Railways, 1916-17.**—The tabular statement given below shews particulars, so far as returns are available, for the year 1916-17, of all private railways open to the public for general traffic in the Commonwealth:—

## PARTICULARS OF PRIVATE RAILWAYS OPEN FOR GENERAL TRAFFIC, 1916-17.

Line.	Miles Open.	Capital Cost.	Gross Revenue.	Expenses.		Train Miles.	Passenger Journeys.	Tons of Goods, etc.	No. of Employees.	Rolling Stock.			
				Working.	Interest, etc.					Locos.	Coaches.	Other Vehicles.	
	No.	£	£	£	£	No.	No.	Tons.	No.	No.	No.		
NEW SOUTH WALES.													
C'wlth. Oil Corp'r'n	33.00	194,500	3,463	4,527	2 ...	13,194	1,156	8,199	17	45	2	69	
Deniliquin-Moama	45.00	162,672	16,845	11,727	2 ...	35,541	12,107	38,303	43	4	6	63	
East Greta Railway	19.40	194,035	61,225	51,088	9,701	360,054	850,841	66,323	234	19	28	40	
Goond'h-Burrinj'k <sup>6</sup>	26.25	81,221	4,073	78,533	2 ...	39,980	3,678	10,799	32	4	3	28	
Hexham-Minni ...	6.08	2 ...	803	973	2 ...	4,900	9,850	1,175	7	1	4	1	
New Redhead Co.	12.00	102,000	54,953	52,291	52,038	2 ...	2 ...	2 ...	2 ...	2 ...	2 ...	2 ...	
Seaham Colliery Co.	5.75	25,000	726	720	2 ...	7,499	12,720	9,250	9	2	2	2	
Silverton Tramway	35.60	475,335	161,493	90,574	2 ...	120,617	45,539	778,718	251	20	1	676	
Total <sup>1</sup>	...	183.08	1,234,763	253,581	170,433	11,739	581,785	935,891	912,767	583	55	46	879

## VICTORIA.

Kerang-Koondrook <sup>6</sup>	13.94	39,229	3,273	2,721	1,794	19,508	12,120	19,700	11	2	2	9
Yarra J.-Powelltown	11.00	46,684	3,111	3,219	465	25,000	12,000	40,000	12	4	2	33
Total	...	24.94	85,913	6,384	5,940	2,259	44,508	59,700	23	6	4	42

## QUEENSLAND.

Aramac-Barcaldine	41.00	86,194	12,001	10,506	3,394	27,230	6,090	14,772	16	2	2	1	
Beaudesert	32.00	93,559	12,337	10,651	...	...	14,090	11,585	27	3	1	1	
Belmont Tramway	4.31	18,006	1,442	1,560	940	9,733	37,630	22,596	3	...	...	...	
Bowen-Proserpine	38.50	104,649	6,211	2,986	3,658	9,984	7,829	10,347	9	...	...	...	
Chillagoe Railway	102.73	420,276	26,119	15,986	...	44,450	16,646	31,294	67	8	3	86	
Douglas-Mossman...	19.30	44,071	6,439	5,428	...	12,000	7,650	9,230	12	2	3	18	
Etheridge	143.00	457,175	11,201	13,339	11,250	17,732	3,124	4,230	3	...	...	...	
Invicta Mill	8.70	20,067	144	268	1,003	629	446	...	3	...	...	...	
Lucinda Pt. to Stone R. and Lg. Pocket	53.50	...	...	...	...	25,000	...	...	...	3	3	20	
Green Hills to Ham- bleton Junc.	4.50	...	...	...	...	...	...	...	...	...	...	...	
Macgregor...	22.13	66,328	4,276	2,577	...	7,730	4,141	21,149	8	...	...	...	
Moreton Central S.M.	7.25	10,150	734	490	...	9,100	7,700	750	4	1	2	2	
Mt. Molloy Tr'mw'y	19.81	42,000	2,330	2,107	...	8,320	1,754	2,475	8	1	...	7	
Stannary Hills	21.00	64,320	2,232	3,244	...	7,320	1,709	5,463	5	1	2	76	
Woongarra	12.19	36,106	1,391	1,962	...	2,558	19,553	8,226	4	...	...	...	
Total <sup>1</sup>	...	529.62	1,462,901	86,847	71,604	20,245	174,776	128,362	142,117	160	19	17	211

## WESTERN AUSTRALIA.

Midland Railway <sup>6</sup> ...	277.00	2,036,855	89,206	72,475	<sup>2</sup> ...	275,564	51,568	77,929	222	17	20	400
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## TASMANIA.

Emu Bay Railway ...	<sup>10</sup> 102.94	614,036	48,704	22,034	20,453	87,705	30,280	35,419	105	10	10	151	
Magnet Railway ...	10.00	18,750	310	2,567	"...	6,240	808	350	9	3	1	8	
Mt. Lyell Railway ...	21.45	216,086	30,149	23,622	"...	46,658	22,944	75,601	96	7	7	117	
Nth. Mt. Lyell Rly.	27.80	316,638	4,635	6,384	"...	11,012	4,243	18,621	22	4	4	52	
Total <sup>1</sup>	...	162.19	1,165,510	83,798	53,607	20,453	151,615	58,275	129,991	232	24	22	328
Total for C'wlth. <sup>1</sup>	...	1176.83	5,985,942	519,816	374,059	54,696	1228,248	1198,216	1322,504	1,220	121	109	1,860

1. Incomplete. 2. Not available. 3. Worked by Government railways. 4. Including one motor car. 5. For year 1915. 6. For year ended 30th September, 1917. 7. Including interest. 8. For year ended 30th June, 1917. 9. Included in working expenses. 10. Including 47.66 miles owned by the Emu Bay and Mount Bischoff Railway Company.



10. **Comparative Railway Statistics.**—On page 660 *ante* a table is given shewing the railway facilities in 1917 in the States, in the Northern Territory, and in the Commonwealth, the railway mileage open for traffic being compared both with the area and population.

In the table below the comparative railway statistics of a like character are given in respect of the principal countries of the world at certain dates. The latter have been taken so that the latest accurate figures for both population and railway mileage could be brought into relation.

**COMPARATIVE RAILWAY STATISTICS IN RESPECT OF CERTAIN COUNTRIES IN EUROPE, ASIA, AFRICA, NORTH AND SOUTH AMERICA, AND AUSTRALASIA, AT THE UNDERMENTIONED DATES.**

Country.	Year.	Miles of Railway.	Population.	Area in Square Miles.	Miles of Railway.	
					Per 1000 of Popu- lation.	Per 1000 Sq. Miles of Territory.
Europe—						
United Kingdom ...	1915	23,709	44,481,494	121,633	0.53	194.93
Austria ...	1913	14,512	29,193,293	115,882	0.50	125.23
Belgium ...	1912	5,401	7,571,387	11,373	0.71	474.90
Denmark ...	1911	2,292	2,775,076	15,582	0.83	147.09
France ...	1911	30,709	39,601,509	207,054	0.78	148.32
Germany ...	1914	39,439	67,812,000	208,780	0.58	188.90
Greece...	1914	1,365	4,821,300	41,933	0.28	32.55
Hungary ...	1912	13,333	21,134,862	125,609	0.63	106.15
Italy ...	1915	11,635	36,120,118	110,632	0.32	105.17
Netherlands ...	1915	2,313	6,449,348	12,582	0.36	183.83
Norway ...	1914	1,967	2,440,500	124,643	0.81	15.78
Portugal ...	1911	1,780	5,957,985	35,490	0.30	50.16
Russia...	1913	35,987	143,114,300	1,997,309	0.25	18.02
Spain ...	1914	9,377	20,500,287	190,050	0.46	49.34
Sweden ...	1914	9,094	5,679,607	172,963	1.60	52.58
Switzerland ...	1915	3,537	3,880,500	15,976	0.91	221.40
Asia—						
India ...	1911	32,829	315,156,396	1,802,629	0.10	18.22
Russia...	1913	10,586	27,787,800	6,641,587	0.38	1.59
Africa—						
Egypt ...	1917	2,874	12,569,000	350,000	0.23	8.21
Union of South Africa	1911	7,848	5,973,394	473,100	1.31	16.59
America, North—						
Canada ...	1914	30,795	8,075,000	3,729,665	3.81	8.26
Mexico ...	1912	15,804	15,501,684	785,881	1.02	20.11
United States...	1915	253,789	100,399,318	2,973,890	2.53	85.34
America, South—						
Argentina ...	1914	21,880	7,885,237	1,153,119	2.70	18.97
Brazil ...	1915	16,294	26,542,402	3,290,564	0.61	4.95
Chili ...	1915	5,015	3,641,477	289,829	1.38	17.30
Australasia—						
C'wlth of Australia ...	1917	24,769	4,895,894	2,974,581	5.06	8.33
New Zealand...	1916	2,989	1,099,295	104,751	2.72	28.53

1. Including lines of "local" interest. 2. Exclusive of Balearic and Canary Islands.

It will be seen from the above table that per 1000 of population the Commonwealth of Australia had the greatest mileage (in 1917), 5.06 miles; the next in magnitude being Canada (1914) with 3.81 miles, New Zealand (1916) with 2.72 miles, Argentina (1914) with 2.70 miles, and the United States (1915) with 2.53 miles.

The least mileage per 1000 of population is shown in the case of India (1911) with 0.10 mile, followed by Egypt (1917) with 0.23 mile of railway.

With regard to the mileage per 1000 square miles of territory, Belgium (1912) with 474.90 miles was easily first, followed by Switzerland (in 1915) with 221.40 miles, the

United Kingdom (in 1915) with 194.93 miles, Germany (in 1914) with 188.90 miles, and the Netherlands (in 1915) with 183.83 miles.

The least mileage open per 1000 square miles is that of Asiatic Russia (in 1913) with 1.59 miles, the next being 4.95 miles in the case of Brazil (1915).

The mileages in the Commonwealth of Australia and the Dominion of Canada per 1000 square miles of territory are very close to each other, being 8.33 miles (1917) and 8.26 miles (1914) respectively, the latter being slightly less than a tenth of the United States, 85.34 miles (in 1915).

### § 3. Tramways.

1. **General.**—Tramway systems are in operation in all the States of the Commonwealth, and in recent years considerable progress has been made in the adoption of electrical traction, the benefit of which is now enjoyed by a number of the principal towns of the Commonwealth.

There are also in many parts of Australia private lines which are used for special purposes, usually in connection with the timber, mining, or milling industries. These lines are usually termed tramways, but they are really private railways, the traffic on which has nothing in common with that of a street tramway used for the conveyance of passengers. Though efforts have been made to collect particulars of these lines, the returns are generally too incomplete for publication.

(i.) *Total Mileage Open and Classification of Lines.* The following table shews the total mileage of tramway lines open for general passenger traffic in each State and in the Commonwealth for the year 1916-17, classified (a) according to the motive power utilised and (b) according to the nature of the authority by which the lines are controlled:—

#### TRAMWAYS.—CLASSIFICATION OF MILEAGE OPEN FOR PASSENGER TRAFFIC, 1916-17.

Nature of Motive Power and Controlling Authority.			N.S. Wales.	Victoria.	Q'land.	South Australia.	Western Australia.	Tas.	C'wealth.
ACCORDING TO MOTIVE POWER.									
			Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
Electric	...	...	152.99	89.08	41.58	64.58	51.62	23.04	422.89
Steam	...	...	74.49	1.15	6.00	...	12.17	19.25	113.06
Cable	...	...	...	46.04	...	...	...	...	46.04
Horse	...	...	...	0.61	...	121.11	14.39	8.00	44.11
Total	...	...	227.48	136.88	47.58	85.69	78.18	50.29	626.10
ACCORDING TO CONTROLLING AUTHORITY.									
Government	...	...	223.98	49.45	...	117.86	54.79	25.50	371.58
Municipal	...	...	...	52.62	6.00	67.83	8.64	23.04	158.13
Private	...	...	3.50	34.81	41.58	...	14.75	1.75	96.39
Total	...	...	227.48	136.88	47.58	85.69	78.18	50.29	626.10

1. 16.36 miles included in South Australian Government railway mileage.

2. **New South Wales.**—In this State the tramways, with but few comparatively unimportant exceptions, are the property of the Government, and are under the control of the Railway Commissioners.

(i.) *Government Tramways.* In Sydney and suburbs the Government tramways are divided into distinct systems. There were in June, 1917, seven such systems in operation within the metropolitan area, the most important being the city and suburban lines, 112.16 miles in length (204.95 miles single track); the North Shore line, 20.38 miles in length

(34.95 miles single track); the Ashfield to Mortlake line, 8.47 miles in length (15.11 miles single track); Manly to the Spit, Brookvale, and Narrabeen, 10.73 miles (14.58 miles single track); and Rockdale to Brighton-le-Sands, 1.25 miles (single track). The last-mentioned line was purchased from a private company and opened for traffic on 7th June, 1914. All of these systems are now operated by electricity. There are two systems on which the motive power used is steam, namely—(a) from Kogarah to Sans Souci, 5.56 miles in length (6.98 miles single track), and (b) from Arncliffe to Bexley, 2.63 miles long (single track).

There are also Government steam tramways in operation at Newcastle, Broken Hill, Parramatta, from East to West Maitland, and from Sutherland to Cronulla. The gauge of line on all the Government tramways is 4 feet 8½ inches.

(a) *Sydney Tramways.* In October, 1862, a horse tramway, 1½ miles long, was opened for traffic in Sydney. Owing to the rails being laid higher than the road surface, the inconvenience thus caused to other traffic necessitated its removal under the authority of an Act passed in November 1865, and it was not until the 15th September, 1879, that the first steam tramway was opened, running from Bridge-street to Hay-street via Elizabeth-street. In the following few years the steam tramways were considerably extended. The electric system was commenced by the opening of a section of the North Sydney lines on the 20th September, 1893. This was followed by the opening of the Ocean-street-Rose Bay line on the 4th October, 1898, and by the opening of the George-street-Pyrmont line on the 8th September, 1899, which introduced the electric system into the city. The tramways in the heart of the city, running along King-street to the suburb of Woollahra, as well as those in North Sydney, were originally worked by underground cables, and have since been converted into electric lines on the overhead trolley system. As already stated the whole of the steam tramways in Sydney and suburbs, with the exception of the Kogarah-Sans Souci and the Arncliffe-Bexley lines, have now been converted into electric lines, and provision for the extra power required for the electrification of the former of these lines has been made at the central power station.

(b) *Other Tramway Systems.* In Newcastle the first section of the tramways, from Perkins-street to Plattsburg, was opened on 31st December, 1887; the total length open on the 30th June, 1917, was 34.07 miles (44.42 miles single track). At Broken Hill and Parramatta the first sections of the tramways were opened in 1902. On the 30th June, 1917, the mileage open at Broken Hill amounted to 10.05 miles (11.44 miles single track), and at Parramatta to 6.69 miles (single track). The line from East to West Maitland, 4.59 miles long (single track), was opened in February, 1909. Further particulars are given below.

(c) *Particulars of all Government Tramways.* The following table shews the total length, the capital cost, the gross revenue, working expenses, net earnings, and the percentages of working expenses on gross revenue, and of net earnings on capital cost, for the financial years 1901-2 and 1912-17:—

**NEW SOUTH WALES.—PARTICULARS OF WORKING OF GOVERNMENT TRAMWAYS,  
1901-2 and 1912-17.**

Year ended the 30th June.	Total Length of Lines Open (Route).	Capital Expended on Lines Open.	Gross Revenue.	Working Expenses.	Net Earnings.	Percentage of Working Expenses on Gross Revenue.	Percentage of Net Earnings on Capital Cost.
	Miles.	£	£	£	£	per cent.	per cent.
1901-2	103.94	2,829,363	631,757	541,984	89,773	85.79	3.19
1912-13	207.88	6,699,305 <sup>1</sup>	1,754,566	1,572,190	182,376	89.61	2.94
1913-14	212.16	7,628,653 <sup>1</sup>	1,934,164	1,669,033	265,131	86.29	3.66
1914-15	219.81	7,970,293 <sup>1</sup>	1,986,060	1,611,287	374,773	81.13	4.70
1915-16	220.83	8,166,423 <sup>1</sup>	1,991,628	1,602,650	388,978	80.47	4.76
1916-17	223.98	8,309,629 <sup>1</sup>	2,008,539	1,691,367	317,172	84.21	3.82

<sup>1</sup> £47,455 of this sum has been paid from the Consolidated Revenue, and no interest is payable thereon.

The net result, after providing for all working expenses and £335,361 for interest on the capital invested, was a deficit of £18,189 in 1916-17, as compared with a surplus of £86,292 in the preceding year. During the year 1916-17, 295,303,714 passengers were carried, an increase of 3,281,940 as compared with the previous year.

(d) *Particulars of Different Systems of Government Tramways.* In the subjoined statement particulars are given of the working of the electric and steam tramways in Sydney, and of other tramways under Government control :—

**NEW SOUTH WALES.—PARTICULARS OF WORKING OF VARIOUS GOVERNMENT TRAMWAYS, 1916-17,**

Line.	Length.		Total Cost.	Gross Revenue.	Working Expenses.	In-terest.	Profit or Loss. <sup>1</sup>	Percentage of Working Expenses on Gross Revenue.
	Route.	Track.						
	Miles.	Miles.	£	£	£	£	£	%
Sydney and Suburban—								
Electric ... ..	152.99	270.84	7,615,100	1,853,398	1,535,423	307,925	+ 10,150	82.84
Steam ... ..	8.19	9.61	50,610	12,217	15,557	2,072	— 5,412	127.34
Total ... ..	161.18	280.45	7,665,710	1,865,615	1,550,980	309,897	+ 4,738	83.14
Parramatta Steam	6.69	6.69	39,743	8,010	10,119	1,627	— 3,736	126.33
Sutherland to Cronulla ..	7.40	7.40	51,183	10,719	9,729	2,095	— 1,105	90.76
Newcastle ..	34.07	44.42	424,318	105,446	98,200	16,472	— 9,326	93.13
East to West Maitland ..	4.59	4.59	39,162	4,995	5,539	1,603	— 2,147	110.89
Broken Hill ..	10.05	11.44	89,613	13,754	16,800	3,667	— 6,713	122.15
Total ... ..	223.98	354.99	8,309,629	2,008,539	1,691,367	335,361	— 18,189	84.21

1. + indicates a profit; — indicates a loss.

The total capital cost shewn in the preceding table was made up as follows :—

**CAPITAL COST OF NEW SOUTH WALES GOVERNMENT TRAMWAYS AS AT 30th JUNE, 1917.**

Permanent Way.	Rolling Stock.	Power-house, Sub-stations, and Plant.	Machinery.	Work-shops.	Furniture.	Store Advances Account.	Total.
£	£	£	£	£	£	£	£
4,140,616	1,816,822	1,808,218	130,007	215,574	2,392	196,000	8,309,629

The average cost per mile open was £18,486 for permanent way and £18,613 for all other charges, making a total of £37,099 per mile.

During the year 1916-17, four new extensions, amounting in all to a length of 3.20 miles, were opened for traffic. On the 30th June, 1917, two extensions, having a total length of 1.88 miles, were under construction.

(e) *Sydney Electric Tramways.* The current for the operation of the city and sub-urban tramways is generated at the power-houses at Ultimo and White Horse Bay, which have been erected at a total cost of £1,808,218, including the cost of the sub-stations and plant. The total output of the power-houses, for both lighting and traction purposes, during the year 1916-17, was 94,326,199 kilowatt-hours, of which the direct-current supply was 352,481, and the alternating current 93,973,718 kilowatt-hours. The following table gives particulars of the working of the electric tramways for the financial years 1912-13 to 1916-17 :—

**NEW SOUTH WALES.—PARTICULARS OF SYDNEY ELECTRIC TRAMWAYS,  
1912-13 to 1916-17.**

Year ended 30th June.	Mileage Open for Traffic.		Total Cost of Construction and Equipment.	Current used for Traction Purposes.	Tram Miles Run.	Passengers Carried.
	Route.	Track.				
	Miles.	Miles.	£	Kilowatt-hours	No.	No.
1913 ...	141.45	242.69	6,162,063	79,839,867	25,479,802	275,977,634
1914 ...	145.74	252.34	7,054,832	86,187,367	26,973,702	290,547,553
1915 ...	150.04	261.09	7,349,866	81,591,224	25,406,807	269,633,638
1916 ...	151.05	266.18	7,526,701	81,688,434	25,008,055	272,048,293
1917 ...	152.99	270.84	7,615,110	80,608,220	23,955,722	275,180,334

Year ended 30th June.	Gross Revenue.	Working Expenses.	Net Revenue.	Percentage of Working Expenses on Gross Revenue.	Number of Cars in Use.	Number of Persons Employed.
	£	£	£	%		
1913 ...	1,616,686	1,433,972	182,714	88.70	1,220	9,048
1914 ...	1,781,063	1,520,185	260,878	85.35	1,396	9,195
1915 ...	1,834,022	1,469,227	364,795	80.11	1,430	8,743
1916 ...	1,838,708	1,452,470	386,238	78.99	1,402	9,808
1917 ...	1,853,399	1,535,423	317,976	82.84	1,398	9,295

(ii.) *Private Tramways.* A private steam tramway passes through the township of Parramatta. Commencing at the park gates, it runs as far as the Duck River, a distance of 3½ miles, where it connects with the Parramatta River steamers, conveying passengers and goods to and from Sydney. This line, the gauge of which is 4 ft. 8½ in., was opened for traffic in 1883. In 1916 the number of tram miles run was 18,200, and the number of passengers conveyed 75,640.

(iii.) *Sydney Harbour Ferries.* As the ferry services on the waters of Port Jackson are mainly subsidiary to the suburban railway and tramway systems, it has been thought advisable to include them here rather than under Shipping. Returns for the year 1916-17 were received from four companies, and shew that these companies had 68 boats in commission, which were licensed to carry a total of 45,996 passengers, or an average of 676 per boat and per trip. The total number of passengers carried during the year is stated as 36,112,767, an average of 98,937 per day. In addition to the ordinary passenger traffic there are two lines providing for vehicular traffic, which afford the only rapid means of transit for such traffic between the city and the northern suburbs. The four companies employed during the year a total of 971 persons. The gross revenue during 1916-17 amounted to £377,463, and the expenditure to £313,135, thus giving a net revenue of £64,328. The services are well managed, and the boats constructed during recent years—double-ended screwboats—are claimed to be superior in size and equipment to boats employed on similar service in any part of the world.

3. *Victoria.*—In Melbourne there are several tramway systems carried on under the control of various authorities, the most important being the cable system worked by the Melbourne Tramway and Omnibus Company up to the 1st July, 1916, and since that date by the Melbourne Tramway Board, to which reference will be made further on. There are also five lines of electric tramways, viz.:—(a) St. Kilda to Brighton, belonging

to the Government and under the control of the Railway Commissioners; (b) Flemington Bridge to the Saltwater River and Keilor Road, owned by a private company; (c) lines connecting Prahran, Windsor, St. Kilda and Elsternwick with Glen Huntly, Caulfield, Malvern, Glenferrie and Kew, controlled by the Prahran and Malvern Tramways Trust; (d) lines from Queensberry Street, Melbourne, to Bell Street, Coburg, and Moreland Road to Baker's Road, Fawkner, owned by the Melbourne, Brunswick and Coburg Tramways Trust, and (e) Princes Bridge to Burwood; Burke Road to Boundary Road, Wattle Park; and Bridge Road, Richmond to Power Street, owned by the Hawthorn Tramways Trust. There is also a cable tramway, two and a-quarter miles in length, between Clifton Hill and Preston, owned by the Northcote municipality. There is a short steam tramway, about one mile long, at Sorrento, and there are also systems of electric tramways at Ballarat, Bendigo, and Geelong, constructed and run by private companies. A number of tramways has been constructed for special purposes in various parts of the State under the provisions of the Tramway Act 1890. These tramways correspond to the description of private railways referred to in sub-section 1 hereof. An electric tramway between Sandringham and Black Rock, 2.38 miles in length, is under construction by the Railway Department. A tramway to the Zoological Gardens, with horse traction, is operated by the Melbourne Tramway Trust.

(i.) *Melbourne Cable Tramways.* A short account of the formation of the Melbourne Tramway and Omnibus Company, and of the Tramway Trust, will be found in previous issues of this book. (See Year Books No. 7, page 652, and No. 9, page 679.) The company was required by the original Act, as amended in 1892, to complete the tramways by the end of the year 1893, and in return a thirty-two years' lease of the tramways was granted to it, dating from the 1st July, 1884—when the liability for interest on the loans commenced—and expiring on the 1st July, 1916. The total amount the Trust was empowered to borrow was £1,650,000, which was raised in London by means of debentures bearing interest at  $4\frac{1}{2}$  per cent. The premiums received amounted to £55,794, making a total of £1,705,794. This amount had been expended by the end of the year 1893, when further loan expenditure ceased. Up to the 30th June, 1917, the total cost of construction and equipment of the tramways amounted to £1,975,314. The first line—that to Richmond—was opened to traffic on the 11th November, 1885, and the work being rapidly pushed on, the other lines were opened at short intervals, and the whole system was completed in 1891. The complete system consists of 43.68 miles of double-track cable lines, using constantly over ninety miles of wire rope, and 0.62 mile of horse tramway at Royal Park. The gauge of track is 4 feet 8 $\frac{1}{2}$  inches.

(a) *Particulars of Working.* The subjoined statement shows the tram mileage, the number of passengers carried, and the revenue and expenditure for the years 1901-2 and 1913 to 1917:—

**MELBOURNE CABLE TRAMWAYS.—PARTICULARS OF WORKING,  
1901-2 and 1913 to 1917.**

Year ended the 30th June.	Train Mileage.	Number of Passengers Carried.	Revenue.	Working Expenses.	Percentage of Working Expenses on Revenue
	No.	No.	£	£	%
1902 ... ..	9,226,883	47,261,572	474,835	269,554	56.7
1913 ... ..	11,889,473	89,359,248	795,091	386,603	48.6
1914 ... ..	12,056,510	91,438,777	823,567	400,202	48.5
1915 ... ..	11,887,462	87,707,934	736,154	404,056	54.9
1916 ... ..	11,977,916	96,702,943	805,636	411,426	51.1
1917 ... ..	12,423,929	103,118,377	843,300	462,132	54.8

On the 30th December, 1915, the Victorian Government appointed a Tramway Board of five members to take over the tramways as from 1st July, 1916, and in due course the Board entered into possession of the tramway properties. The amount of compensation to be paid to the company has been the subject of arbitration, but has not yet been settled owing to an appeal as to the amount awarded, which is still under consideration.

(ii.) *Electric Tramways.* As already mentioned, there are in Melbourne five electric tramway systems, namely (a) the St. Kilda-Brighton line, (b) the North Melbourne tramways, (c) the Prahran-Malvern Tramway Trust system, (d) the Melbourne, Brunswick and Coburg Tramway Trust system, and (e) the Hawthorn Tramway Trust system.

(a) *The St. Kilda-Brighton Line.* Under the St. Kilda and Brighton Electric Street Railway Act 1904, the Board of Land and Works was authorised to construct a tramway from St. Kilda to Brighton. The amount of interest payable on the cost of the land acquired for the tramway was guaranteed by the municipalities of St. Kilda and Brighton for a period of twenty years, and authority was given by the Act to the municipalities to levy either a general or special rate not exceeding one shilling in the pound for the purpose of paying the guarantee. The profit, if any, during the first twenty years is to be set off in reduction of the guarantee. The line was opened for traffic between St. Kilda and Park-street, Middle Brighton, on the 7th of May, 1906, and the extension to Brighton Beach was opened on the 22nd of December, following. The capital cost to the 30th June, 1917, exclusive of rolling-stock, was £107,731, and of rolling-stock £48,511, making a total of £156,242. The gauge of track is 5 ft. 3 in. The subjoined statement gives particulars of the working of this line for the financial years ended the 30th June, 1913 to 1917:—

#### ST. KILDA-BRIGHTON ELECTRIC STREET TRAMWAY, 1913-17.

Year ended 30th June.	Mileage Open (Route).	Capital Cost.	Car Mileage.	Passengers Carried.	Gross Revenue.	Working Expenses.	Interest.	Net Profit or Loss. <sup>1</sup>
		£			£	£	£	£
1913	5.13	88,133	413,939	1,916,618	16,829	15,808	3,093	—2,072
1914	5.16	95,494	541,449	2,390,949	20,516	20,850	3,333	—3,667
1915	5.16	101,726	577,468	2,718,972	22,614	19,905	3,428	— 719
1916	5.16	132,300	597,819	3,126,984	25,580	22,844	4,697	—1,961
1917	5.16	156,242	572,735	3,450,442	27,919	20,502	6,250	+1,167

1. Profit is indicated by +, loss by —.

The average fare paid per passenger was 1.93 pence in 1916-17 as against 1.95 pence in 1915-16. The gross revenue in 1916-17 was 11.70 pence per passenger car mile and £2705 per mile of single track open.

(b) *The North Melbourne Tramways*, extending through the northern suburbs to the Saltwater River and to Keilor Road, were constructed by a private company, and were opened for traffic on the 11th October, 1906. The route and track mileage for year ended 30th September, 1917, were 7.51 and 11.43 miles respectively, the gauge of line being 4 feet 8½ inches. The number of passengers carried during the same period was 3,389,329. The current used during the year for traction purposes was 768,597 kilowatt hours, while the number of persons employed was 111.

(c) *The Prahran-Malvern Tramway.* The lines have been constructed under the control of a trust, which now consists of seven members appointed from the councils of Prahran, Malvern, St. Kilda, Caulfield, Hawthorn, Kew, and Camberwell. At the 30th September, 1917, the total route mileage open was 32.06 miles, the total track mileage being 59.62 miles, and the total capital cost £740,034. The gauge of the track is 4 ft. 8½ in. The current is supplied by the Melbourne Electric Supply Company Limited at a price varying according to the consumption of current and the price of fuel. Any surplus revenue, after providing for operating expenses, interest, sinking fund and renewal reserve, is to be paid to the municipal councils interested in proportion to the car mileage run in their respective districts. The first section of the lines was opened for traffic on 31st May, 1910. During the year ended 30th September, 1917, the current used for traction purposes was 6,088,038 kilowatt hours, and the number of tram miles run was 2,804,952, the number of passengers carried 26,209,178, the gross revenue £172,306, and the working expenses £121,463. The number of cars in use was 85, and the number of persons employed 458.

(d) *The Melbourne, Brunswick and Coburg Tramways Trust.* The first section of these tramways, that between Moreland Road and Bell Street, was opened for traffic on 27th April, 1916. At the 30th September, 1917, the route and track mileages open for traffic were 7.03 and 12.29 miles respectively. During the year ended 30th September, 1917, the current used for traction purposes was 904,070 kilowatt hours, the tram miles run 538,457, the number of passengers carried 4,364,593, the gross revenue £28,674 and the working expenses £18,754. Eighteen cars were in use, and the number of persons employed was 89.

(e) *The Hawthorn Tramway Trust.* The first section of these tramways, that from Princes Bridge to Power Street, Hawthorn, was opened for traffic on 6th April, 1916, and on 30th September, 1917, the route and track mileages in operation were 11.17 and 18.00 miles respectively. During the year ended 30th September, 1917, the current used for traction purposes was 1,876,521 kilowatt hours, the tram miles run 905,275, number of passengers carried 8,152,165, the gross revenue £60,379, and the working expenses £43,844. The number of cars in use was 26 and the number of persons employed 156.

(f) *The Ballarat and Bendigo Electric Tramways* are under the control of a private company, and run along the main streets and to and from the outlying suburbs of the two cities. The total length of lines open for traffic is 21.25 route miles and 25.86 track miles, the gauge being 4 ft. 8½ in. During the year ended 31st December, 1917, 4,804,378 passengers were carried, the gross revenue being £43,884, and the working expenses £34,267. The number of cars in use was 55, and the number of persons employed was 134.

(g) *The Geelong Electric Tramways.* This line, which is privately owned, was opened for traffic on the 14th March, 1912, and up to the 31st August, 1917, the cost of construction and equipment, exclusive of generating plant, was £60,073. The system has a route and track mileage of 4.90 and 5.67 miles respectively, the gauge being 4 ft. 8½ in. The car mileage for the year ending on the last-mentioned date was 229,137 miles, and the number of passengers carried 1,216,491. For the same period the revenue was £15,055, and the expenditure £12,200.

(h) *Particulars of Working of all Electric Tramways.* The following table gives particulars of the working of all electric tramways in Victoria for each year from 1913 to 1917 inclusive:—



## VICTORIA.—PARTICULARS OF WORKING OF ELECTRIC TRAMWAYS, 1913-17.

Year.	Mileage Open for Traffic (Route).	Total Cost of Construction and Equipment.	Current Generated at Central Stations for Traction Purposes.	Tram Miles Run.	Number of Passengers Carried.	Gross Revenue.	Working Expenses.	Number of Cars in Use.	Number of Employees.
	Miles.	£	Kilowatt-hrs.	No.	No.	£	£	No.	No.
1913	53.40	1,009,347	4,551,022	3,182,916	20,181,350	158,954	116,669	169	593
1914	61.85	1,082,824	6,591,628	4,110,787	28,071,661	212,036	156,404	181	735
1915	69.47	1,299,786	7,445,978	4,358,030	30,150,912	223,056	164,313	193	811
1916	83.91	1,765,854	9,553,034	5,327,895	39,928,454	288,206	206,367	235	1,009
1917	89.08	1,861,771	11,910,707	6,462,318	51,596,576	373,594	271,315	255	1,074

(iii.) *Private Tramways for Special Purposes.* There are in Victoria several tramways, or more strictly light private railways, used for special purposes, chiefly in connection with the timber, mining, and milling industries. These lines have been constructed either under authority of the Department of Public Works, pursuant to Section 36 of the Tramway Act 1890, or under leases or licenses issued by the Department of Lands and Survey, pursuant to Sections 144 and 145 of the Land Act 1901. Particulars of these lines are too incomplete for publication.

4. *Queensland.*—In this State there is a system of electric tramways running through the streets of the city and suburbs of Brisbane and controlled by a private company which has its head office in London. The total length of the Brisbane system was 41.58 route miles at the end of the year 1917. There is also a steam tramway in operation at Rockhampton having a length of 6 route miles. Particulars of Shire tramways have been given in the part of this section dealing with private railways (see p. 704).

(i.) *Brisbane Electric Tramways.* These tramways are run on the overhead trolley system, the voltage of the line current being 550. The total cost of construction and equipment to the end of the year 1916 was £1,468,906, the gauge of line being 4 ft. 8½ in. The following table gives particulars of these tramways for the calendar years 1901 and 1913-17.

## QUEENSLAND.—BRISBANE ELECTRIC TRAMWAYS, PARTICULARS OF WORKING, 1901 and 1913-17.

Year.	Mileage Open for Traffic (Route).	Cost of Construction and Equipment.	Current Generated.	Tram Miles Run.	Number of Passengers Carried.	Gross Revenue.	Working Expenses.	No. of Cars in Use.	Number of Persons Employed.
	Miles.	£	Kilowatt-hrs.	No.	No.	£	£	No.	No.
1901	25.00	1...	3,192,955	2,756,443	16,183,801	111,483	64,710	79	375
1913	34.55	1,288,518	7,013,962	3,979,443	44,690,950	316,244	191,936	149	803
1914	38.20	1,437,550	10,002,034	4,111,903	48,162,065	348,406	194,960	154	825
1915	40.20	1,476,866	11,563,696	4,339,863	49,695,313	372,383	233,761	161	803
1916	40.45	1,468,906	9,272,709	4,286,802	51,029,668	364,745	216,607	172	921
1917	41.58	1,468,906	8,964,113	4,377,104	51,860,308	371,850	257,035	172	1,121

1. Not available. 2. Figures for 1916.

(ii.) *Rockhampton Municipal Tramways.* These tramways were opened for traffic in 1909, the motive power being steam. The length of track is 6 route miles, and the gauge 3 ft. 6 in. The capital cost to 31st December, 1917, was £42,000. During the year 1,432,329 passengers were carried, the revenue being £10,850, and working expenses £8269. The number of the staff at end of year was 30.

(iii.) *Sugar-Mill Tramways.* In various parts of Queensland there are tramways used in connection with the sugar-milling industry, chiefly for the purpose of hauling cane to the mills. Some of these lines are of a permanent nature, running through sugar-cane plantations, while others are portable lines running to various farms.

5. **South Australia.**—Up to the year 1906 the tram service in the principal streets of Adelaide and suburbs was a horse system run by various private companies. Power to acquire these lines, and to provide for their extension and management by means of a Trust, was given to the Government by the Municipal Tramways Trust Act 1906. In accordance with the provisions of the Act, a Trust consisting of eight members, of whom two were nominated by the Governor, two elected by the City Corporation, and two each by the Suburban Corporations and the District Councils involved, was formed in 1907, and a length of forty-nine route miles of horse traction tramways was purchased from the private companies for a sum of £282,582. On the 10th March, 1909, the electric car system was inaugurated on the Kensington route. At the end of July, 1917, a length of 64.58 route miles had been electrified and opened for traffic, the corresponding length of track opened being 111.56 miles. The cost of construction and equipment on the 31st July, 1917, was £1,703,151. The following table gives particulars of the tramways for the years ended 31st July, 1913-17:—

**SOUTH AUSTRALIA.—ADELAIDE ELECTRIC TRAMWAYS, PARTICULARS OF WORKING, 1913-17.**

Year.	Mileage Open for Traffic (Route)	Capital Cost.	Current Used for Traction Purposes.	Car Miles Run.	Number of Passengers Carried.	Gross Revenue.	Working Expenses.	No. of Cars in Use.	No. of Persons Employ'd
	Miles.	£	Kil'w'tt-hrs.	No.	No.	£	£	No.	No.
1913	49.69	1,350,710	9,169,269	5,140,706	41,576,483	310,241	207,319	170	1,113
1914	51.86	1,396,638	9,838,252	5,325,660	43,797,227	328,810	202,503	170	1,073
1915	54.42	1,451,989	9,428,315	4,914,357	42,287,503	309,915	191,070	170	1,045
1916	54.42	1,486,546	9,286,910	4,719,043	43,141,885	322,759	193,965	170	1,120
1917	64.58	1,703,151	10,392,667	4,954,848	45,431,691	338,361	211,662	170	1,200

There are also in South Australia nineteen and three-quarter miles of Government horse tramways in country districts, worked in connection with the railway system, and seven and one-half miles of private tramways used for passenger service. The subjoined statement gives various particulars of these lines:—

**SOUTH AUSTRALIA.—PARTICULARS OF HORSE TRAMWAYS, 1916-17:**

Particulars.	Length.	Gauge.	Nature of Traffic.
<b>GOVERNMENT TRAMWAYS.</b>			
Moonta, Moonta Bay, and Hamley Flat	Miles. 15.15	ft. in. 5 3	Passengers and goods.
Gawler ... ..	11.20	5 3	" "
Victor Harbour and Breakwater	1.00	5 3	" "
Dry Creek and Magazine	1.00	2 0	Explosives.
Magazine and Broad Creek	1.50	2 0	" "
Port Broughton and Mundoorra	110.01	3 6	Passengers and goods.
<b>MUNICIPAL TRAMWAY.</b>			
Port Adelaide and Alberton	3.50	5 3	Passengers.
<b>PRIVATE TRAMWAY.</b>			
Glenelg and Brighton <sup>2</sup>	4.00	4 8½	Passengers.

1. Included in mileage of Government railways.

2. Not in operation at present.

6. **Western Australia.**—In this State there are several tramways, amounting in all on the 30th June, 1916, to a length of  $24\frac{1}{2}$  miles, which are the property of the Government. Of these the most important is the line between Roebourne and Cossack, constructed on a 2-ft. gauge and under the control of the Colonial Secretary's Department. The length of this line is  $12\frac{1}{2}$  miles, and it is worked by steam. The remaining  $12\frac{1}{2}$  miles belonging to the Government are made up of four short lengths, varying from two and a quarter miles to four and a quarter miles long, worked by horses, in connection with the jetties at certain ports for the purpose of providing the necessary communication between such jetties and the goods sheds or warehouses. Most of these lines are leased at annual rentals, and are under the supervision of the Harbour Master. Their maintenance and improvement is in the hands of the Public Works Department. In addition to these Government lines there are electric tramway systems at Perth, under Government control; at Kalgoorlie and Boulder City, carried on by private companies; and at Fremantle, under municipal control.

(i.) *Steam and Horse Tramways.* Particulars as to the working of the Government horse tramways or as to the rents received therefrom are not generally available. The returns of the Roebourne-Cossack steam tramway for the year ended 30th June, 1916, shew that the capital cost of the line to that date was £60,101, the gross revenue for the year being £2551, and the working expenses £1736.

(ii.) *Electric Tramways.* There are now four towns in Western Australia which enjoy the benefits of electric tramway systems, namely, Perth, Fremantle, Kalgoorlie, and Boulder City.

(a) *The Perth Electric Tramways* were opened for traffic by a private company on the 24th September, 1899, and the system has since been extended to many of the outlying suburbs. This tramway system was taken over by the Government on 1st July, 1913, and is now running in conjunction with the Government railways. On the 30th June, 1917, the route and track miles open for traffic were 28.23 and 36.44 miles respectively, the total cost of construction and equipment to that date being £591,909. During the year, 12,095,661 passengers were carried, the gross revenue being £125,719 and the working expenses £94,196. Sixty-five motors were in use, and the number of employees was 331. The gauge of line is 3 ft. 6 in.

(b) *The Fremantle Tramways* were opened in November, 1905, under the control of the municipality. On the 31st August, 1917, there were 8.64 route and 11.55 track miles of line open for traffic, the cost of construction and equipment at that date being £117,531. This line has a gauge of 3 ft. 6 in. During the year 4,995,860 passengers were carried, the gross revenue being £39,552 and the working expenses £32,520. Twenty-five cars were in use, and the number of employees was 130.

(c) *The Kalgoorlie and Boulder City Tramways* are run by a private company, the first line being opened in 1902. At the beginning of 1904 legislative authority was given for the construction of lines in Boulder City and suburbs, and in November, 1904, the last section of the Boulder system was completed. At the end of the year 1917 the total mileage of the whole system—in Kalgoorlie and Boulder City—amounted to  $14\frac{1}{2}$  route or  $20\frac{1}{2}$  track miles, the total cost of construction and equipment being £452,038. During the year, 2,086,526 passengers were carried, the gross revenue being £32,609 and the working expenses £27,131. Twenty-five motors and seven trailers were in use, and the number of employees was 65. The gauge of this line is 3 ft. 6 in.

(d) *The Leonora-Gwalia Tramway*, two and a quarter route miles in length, was initially a steam tramway. It was opened for traffic by electrification under municipal control on 5th October, 1908, but is now worked with a petrol motor by a private syndicate. It has a gauge of 3 ft. 6 in.

(e) *Particulars of Working of all Electric Tramways.* The subjoined table shews, so far as returns are available, particulars of the working of all electric tramway systems in the State for the years 1901 and 1913-17.

## WESTERN AUSTRALIA.—PARTICULARS OF ELECTRIC TRAMWAYS, 1901 and 1913-17.

Year.	Mileage Open for Traffic (Route).	Total Cost of Construction and Equipment.	Current Generated.	Tram Miles Run.	Number of Passengers Carried.	Gross Revenue.	Working Expenses.	No. of Cars in Use.	No. of Persons Employed.
	Miles.	£	Kilowatt-hrs.	No.	No.	£	£	No.	No.
1901	16.50	367,037	<sup>2</sup> ...	721,056	<sup>2</sup> ...	46,270	26,673	30	<sup>2</sup> ...
1913	48.02	1,042,584	4,728,809	2,602,321	16,164,928	174,803	103,387	109	425
1914	48.83	1,068,058	<sup>3</sup> 4,924,038	2,716,707	17,331,979	184,072	126,586	121	453
1915	50.75	1,092,289	<sup>3</sup> 5,045,163	2,793,519	17,568,161	182,935	130,868	121	471
1916	52.98	1,132,119	<sup>3</sup> 5,203,548	2,874,308	18,355,169	191,125	139,633	123	572
1917 <sup>3</sup>	51.61	1,161,478	5,799,337	2,955,503	19,178,047	197,880	153,847	122	526

1. For the year 1901 the figures represent miles of single track.

2. Not available.

3. Exclusive of Leonora tramway.

(iii.) *Perth Ferries.* As the Perth ferry services are mainly subsidiary to the suburban tramway system, they are referred to in this section rather than under *Shipping*. Of the twelve boats in service, four are under the control of the Western Australian Government, the other eight belonging to a private company. The number of passengers carried during the year 1916-7 was 891,546, the revenue and expenditure for the same period were £10,358 and £10,417 respectively, and the number of persons employed 23.

7. *Tasmania.*—(i.) *Tramways.* In Hobart there is a system of electric tramways, opened for traffic in 1893, amounting in all to a length of 13 and 16½ route and track miles respectively. This was originally owned by a private company, but is now the property of the Hobart Municipal Council. Under the authority of the Launceston Tramway Act of 1906 the Launceston City Council entered into an agreement with a private company for the construction of a system of electric tramways in the city and suburbs of Launceston. The agreement provided that the company was to run the tramways for a period of twenty-five years, when the Council could purchase the lines and stock at cost price; the electric power required was to be supplied by the Council. This agreement, however, lapsed, and the Council has constructed the tramways, and is running them as a municipal undertaking. The system, which was opened on the 16th August, 1911, has a route and track mileage of 10.04 and 10.90 miles respectively. The gauge of track in both these systems is 3 ft. 6 in.

The following table gives particulars of the working of the two systems for the years 1901 and 1913-17:—

## TASMANIA.—PARTICULARS OF WORKING OF ELECTRIC TRAMWAYS, 1901 and 1913-17.

Year.	Mileage Open for Traffic (Route).	Total Cost of Construction and Equipment.	Current Generated.	Tram Miles Run.	Number of Passengers Carried.	Gross Revenue.	Working Expenses.	Number of Cars in Use.	Number of Persons Employed.
	Miles.	£	Kilowatt-hrs.	No.	No.	£	£	No.	No.
1901 <sup>1</sup>	9.00	90,000	<sup>2</sup> ...	321,633	1,734,120	16,097	11,735	20	90
1913	16.71	280,871	1,555,053	836,508	6,344,566	55,875	37,058	47	235
1914	18.91	325,239	1,345,918	908,862	7,147,543	60,885	38,946	49	259
1915	21.43	347,214	2,171,968	999,315	7,462,782	68,170	46,568	60	314
1916	21.95	373,812	1,576,839	1,058,979	7,963,040	73,424	46,758	60	250
1917	23.04	383,219	1,687,407	1,115,090	8,349,789	79,693	49,930	60	259

1. Hobart tramways only.

2. Not available.

There is also a tramway from Smithton to Marrawah, 25½ miles in length, operated by the Government. Of this distance eight miles are worked as a horse tram, the rest being for steam traction. In the year ended 30th June, 1917, 1364 passengers and 23,212 tons of goods were conveyed, the number of employees being 11.

A private steam tram at Zeehan, 1.75 miles in length, is also in operation. In 1917, 1138 passengers and 7929 tons of goods were conveyed, the number of persons employed being three.

(ii.) *Ferries.* The Hobart ferry service, being of a suburban character, is referred to here rather than under *Shipping*. There is one company controlling a fleet of six boats, and also a ferry operated by the Public Works Department with two boats. In the year 1916-17 the number of passengers carried was 751,463, the revenue £10,609, the working expenses £9546, and the number of persons employed 37.

8. *Electrical Traction in Commonwealth, 1916-17.*—The subjoined table gives particulars of electric tramways for each State and the Commonwealth. The returns for the Hobart tramways in Tasmania, for the Ballarat and Bendigo tramways in Victoria, for the Kalgoorlie tramways in Western Australia, and for the Brisbane tramways, are for the calendar year 1917; and for other tramways the returns are, generally, for the financial year 1916-17:—

#### ELECTRIC TRAMWAYS IN THE COMMONWEALTH, 1916-17.

State.	Mileage open for Traffic (Route)	Capital Cost.	Current Generated.	Tram Miles Run.	No. of Passengers Carried.	Gross Revenue.	Working Expenses.	No. of Cars, Motors, and Trail'rs	No. of Employees
	Miles.	£	Kilowatt-hours.	No.	No.	£	£	No.	No.
N.S.W. ....	153.99	7,615,100	80,608,920	23,955,722	275,180,334	1,853,399	1,535,423	1,398	9,295
Victoria ....	89.08	1,861,771	11,610,707	6,462,318	51,586,576	373,594	271,315	255	1,074
Queensland ...	41.58	1,468,906	8,864,113	4,377,104	51,660,308	371,850	257,035	172	1,121
South Australia	34.58	1,703,151	10,382,667	4,964,848	45,431,691	338,361	211,662	170	1,200
West Australia*	51.61	1,161,478	5,793,337	2,955,503	19,178,047	197,880	153,847	122	626
Tasmania ....	23.04	383,219	1,687,407	1,115,090	8,349,789	79,693	49,930	60	259
Commonwealth	422.88	14,193,625	119,352,451	43,820,585	451,586,745	3,214,777	2,479,212	2,177	13,475

1. Exclusive of Leonora tramway. 2. For year 1916.

In the following table particulars are shewn as to the operations of electric tramways in the Commonwealth for the period 1908-1917:—

#### ELECTRIC TRAMWAYS IN THE COMMONWEALTH, 1908-17.

Year.	Mileage open for Traffic (Route).	Total Cost of Construction & Equipm't.	Current Generated.	Tram Miles Run.	Number of Passengers Carried.	Gross Revenue.	Working Expenses.	No. of Cars, Motors, & Trailers.	No. of Employees
	Miles.	£	Kilowatt-hours.	No.	No.	£	£	No.	No.
1907-8	208.74	6,063,331	49,216,203	24,539,014	210,332,185	1,337,031	988,844	1,060	6,102
1908-9	238.76	7,062,667	55,140,437	26,435,716	232,066,948	1,474,802	1,072,390	1,355	7,420
1909-10	272.24	7,954,192	62,178,735	30,482,066	268,251,284	1,731,637	1,297,379	1,401	8,372
1910-11*	297.47	8,747,597	90,804,252	33,625,344	312,857,166	2,030,533	1,512,473	1,506	9,329
1911-12	322.24	9,669,808	93,897,694	37,256,203	363,959,404	2,345,428	1,775,937	1,628	11,063
1912-13	345.07	11,147,493	106,987,982	41,258,696	405,480,511	2,635,526	2,092,810	1,864	12,208
1913-14	365.39	12,365,142	118,894,845	44,147,626	435,058,028	2,915,273	2,239,584	2,071	12,548
1914-15	386.30	13,018,010	116,567,559	42,811,891	416,798,309	2,990,481	2,235,806	2,135	12,077
1915-16	404.76	13,753,988	116,569,324	43,262,733	432,427,059	3,076,982	2,255,800	2,162	13,181
1916-17*	422.88	14,193,625	119,352,451	43,820,585	451,586,745	3,214,777	2,479,212	2,177	13,475

1. Exclusive of Leonora tramway (W.A.), with exception of mileage. 2. Exclusive of Leonora tramway.

## SECTION XVIII.

## POSTS, TELEGRAPHS, AND TELEPHONES.

## § 1. Posts.

**1. The Commonwealth Postal Department.**—Under the provisions of section 51 of the Commonwealth Constitution Act the Commonwealth Parliament was empowered to make laws with respect to the control of the postal, telegraphic, and telephonic services in Australia, and by proclamation, made under section 69 of the same Act, the six separate State Post and Telegraph Departments were amalgamated and taken over by the Federal Executive on the 1st March, 1901. On the 1st December following, the Commonwealth Post and Telegraph Act 1901 came into operation, and the provisions of the various State Acts referring to the postal and telegraphic services thereby ceased to apply; it was, however, specially provided by the Act of 1901 that, until such provisions should be revoked by the Governor-General, all regulations in force, and all rates and charges levied under any State Act, should continue in force and be applied in the same manner as if such State Act were not affected by the Commonwealth Act. The administration of the Act of 1901 was placed in the hands of a Postmaster-General, a responsible Minister with Cabinet rank, and of a Secretary having chief control of the Department throughout the Commonwealth under the Postmaster-General, whilst a principal officer in each State was provided for under the style of Deputy Postmaster-General. The rates and charges levied in each State for the transmission of letters, telegrams, and postal articles at the date of Federation remained in force until the Post and Telegraph Rates Act came into operation on the 1st November, 1902. This Act secured uniformity throughout the Commonwealth in the rates charged for the conveyance of newspapers by post, and for the transmission of telegrams, but did not alter the charges made in the individual States for the transmission of letters, cards, parcels, and packets. Uniform postage rates now exist in all the States under the Postal Rates Act of 1910, which came into operation by proclamation on the 1st May, 1911. (See paragraph 6 hereof.)

For a brief description of the postal services in the earlier period of Australian history, see Year Book No. 5, page 754.

**2. Development of Postal Services.**—In 1841 the number of post offices open in Australia was 102, situated mainly in New South Wales and Tasmania. At the end of ten years 101 post offices were open in New South Wales, 44 in Victoria, 72 in South Australia, and 51 in Tasmania. From the year 1851 onwards a remarkable increase in the number of post offices in Australia took place, until, in 1891, the number open on the mainland and Tasmania totalled 4463, of which 1384 were situated in New South Wales, 1729 in Victoria, 307 in Queensland, 629 in South Australia, 86 in Western Australia, and 328 in Tasmania.

On the 30th June, 1917, the postal business had increased to such an extent that 5980 post offices were open for business, of which number 2040 were situated in New South Wales, 1782 in Victoria, 643 in Queensland, 705 in South Australia, 412 in Western Australia, and 398 in Tasmania.

3. State, Interstate, and Oversea Postages for whole Commonwealth.—In the following table the matter dealt with from 1911 to 1916-17 is divided into (i.) matter posted in the Commonwealth for delivery within the Commonwealth, (ii.) matter received from places outside the Commonwealth, (iii.) matter despatched to places outside the Commonwealth, and (iv.) total postal matter dealt with by the Commonwealth Postal Department but excluding interstate excess. The large increase in oversea mail matter despatched and received in 1916-17 is mainly attributable to postages in connection with the Australian troops abroad.

**STATE, INTERSTATE, AND OVERSEA POSTAGES FOR THE COMMONWEALTH,  
1911 to 1916-17.**

Year.	Letters and Postcards.		Newspapers.		Packets.		Parcels.	
	Number ('000 omitted).	Per 1000 of Population.	Number ('000 omitted).	Per 1000 of Population.	Number ('000 omitted).	Per 1000 of Population.	Number ('000 omitted).	Per 1000 of Population.

**POSTED FOR DELIVERY WITHIN THE COMMONWEALTH.**

1911	...	416,353	92,721	122,020	27,174	70,975	15,806	3,205	714
1912	...	431,996	93,005	122,373	26,346	60,439	13,012	3,583	771
1913	...	449,928	93,664	115,662	24,078	62,731	13,059	3,976	828
1914	...	467,114	94,957	122,534	24,909	59,989	12,195	4,163	846
1915-16	...	461,167	93,505	128,928	26,141	51,498	10,442	4,366	885
1916-17	...	478,287	98,104	124,939	25,627	45,926	9,420	4,337	890

**OVERSEA RECEIVED.**

1911	...	19,445	4,330	11,691	2,604	4,568	1,017	142	32
1912	...	24,266	5,224	13,565	2,920	5,275	1,136	196	42
1913	...	37,986	7,908	13,043	2,715	4,424	921	213	44
1914	...	30,952	6,292	11,068	2,250	2,316	471	191	39
1915-16	...	32,292	6,547	8,603	1,744	2,115	429	220	45
1916-17	...	59,301	12,163	10,209	2,094	3,007	617	245	50

**OVERSEA DESPATCHED.**

1911	...	17,265	3,845	7,926	1,765	3,120	695	83	18
1912	...	24,146	5,198	9,364	2,016	3,357	723	89	19
1913	...	30,569	6,364	10,658	2,219	4,131	860	108	22
1914	...	26,724	5,433	7,517	1,528	2,227	453	86	17
1915-16	...	33,668	6,826	10,011	2,030	2,955	599	466	94
1916-17	...	47,464	9,736	12,095	2,481	3,226	662	1,173	241

**TOTAL POSTAL MATTER DEALT WITH BY THE COMMONWEALTH POSTAL  
DEPARTMENT, BUT EXCLUDING INTERSTATE EXCESS.**

1911	...	453,975	101,100	139,603	31,089	79,017	17,597	3,419	761
1912	...	479,677	103,271	138,170	29,747	70,609	15,202	3,764	810
1913	...	520,518	108,359	136,195	28,352	69,771	14,525	4,286	892
1914	...	524,483	106,620	136,670	27,783	62,634	12,733	4,436	902
1915-16	...	526,777	106,808	143,472	29,090	55,563	11,266	5,104	1,035
1916-17	...	584,149	119,817	146,858	30,123	51,516	10,567	5,735	1,176

4. **State, Interstate, and Oversea Postages for each State.**—The following table shews separately for each State the postal matter dealt with in 1916-17 under the classification adopted in the preceding paragraph. The returns given for South Australia in this and all succeeding tables include those for the Northern Territory. Similarly, the returns for the Federal Territory are included in those for New South Wales :—

**STATE, INTERSTATE, AND OVERSEA POSTAGES FOR EACH STATE, 1916-17.**

State.	Letters and Postcards.		Newspapers.		Packets.		Parcels.	
	Number (,000 omitted).	Per 1,000 of Popula- tion.	Number (,000 omitted).	Per 1,000 of Popula- tion.	Number (,000 omitted).	Per 1,000 of Popula- tion.	Number (,000 omitted).	Per 1,000 of Popula- tion.
POSTED FOR DELIVERY WITHIN COMMONWEALTH.								
New South Wales...	190,399	102,323	54,060	29,053	23,905	12,847	2,190	1,177
Victoria ...	148,451	106,053	32,702	23,362	8,798	6,285	748	534
Queensland ...	55,477	82,867	19,847	29,646	7,529	11,246	855	1,277
South Australia ...	37,523	85,947	7,263	16,636	3,049	6,984	255	584
Western Australia	27,094	87,738	4,759	15,411	1,574	5,097	216	699
Tasmania ...	19,343	96,751	6,308	31,552	1,071	5,357	73	365
Commonwealth...	478,287	98,104	124,939	25,627	45,926	9,420	4,337	890

**OVERSEA RECEIVED.**

New South Wales	29,783	16,006	4,696	2,524	1,122	603	85	46
Victoria ...	17,847	12,750	2,710	1,936	731	522	62	44
Queensland ...	4,088	6,106	1,009	1,507	243	363	42	63
South Australia ...	3,216	7,366	625	1,432	122	279	23	53
Western Australia	2,990	9,682	957	3,099	369	1,194	23	74
Tasmania ...	1,377	6,888	212	1,060	420	2,101	10	50
Commonwealth...	59,301	12,163	10,209	2,094	3,007	617	245	50

**OVERSEA DESPATCHED.**

New South Wales	19,627	10,548	5,348	2,874	1,970	1,059	463	249
Victoria ...	15,843	11,318	2,987	2,134	881	629	358	256
Queensland ...	3,974	5,936	1,485	2,218	130	194	104	155
South Australia ...	3,808	8,722	1,160	2,657	118	270	130	298
Western Australia	2,685	8,695	778	2,519	51	165	84	272
Tasmania ...	1,527	7,638	337	1,686	76	335	34	170
Commonwealth...	47,464	9,736	12,095	2,481	3,226	662	1,173	241

5. **Postal Facilities.**—The subjoined statement shews the number of post and receiving offices, the area in square miles and the number of inhabitants to each post office (including receiving offices) in each State and in the Commonwealth at the end of the year 1916-17. It will be observed that the most sparsely populated States have the greatest number of offices in comparison with their population, but in order to judge the relative extension of postal facilities the area of country to each office must also be taken into account.



**SQUARE MILES OF TERRITORY AND NUMBER OF INHABITANTS TO EACH POST  
AND RECEIVING OFFICE ON 30th JUNE, 1917.**

State.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'with.
Number of post and receiving offices...	2,588	2,638	1,328	830	618	481	8,483
Number of square miles of territory to each post office in State ...	120	33	505	1,089	1,579	55	351
Number of inhabitants to each office...	723	532	513	524	499	410	577
Number of inhabitants per 100 sq. miles	603	1,596	102	48	32	753	165

\* Including Federal Territory.

† Including Northern Territory.

6. Rates of Postage.—Prior to the operation of the Postal Rates Act of 1910, the charges made for the postage of newspapers and parcels, and of interstate and foreign letters, were the same in all the States of the Commonwealth. The rates for the transmission of letters within the borders of a State, however, were not uniform, the Post and Telegraph Act 1901 having specially provided that the rates and charges levied in any State should continue in force. The last-mentioned provision, however, was repealed by the Postal Rates Act of 1910, which came into force by proclamation on 1st May, 1911, and uniform rates are now applicable throughout the Commonwealth.

The following rates on letters, newspapers, and certain other postal articles posted in the Commonwealth for delivery therein came into force on the 1st May, 1911, the date of proclamation of the operation of the Postal Rates Act of 1910 :—

**POSTAL RATES ON CERTAIN ARTICLES POSTED IN THE COMMONWEALTH  
FOR DELIVERY THEREIN ON AND AFTER 1st MAY, 1911.**

Postal Articles.	Rates of Postage.
LETTERS ...	1d. per $\frac{1}{2}$ ounce.
LETTER-CARDS ...	{ Single, 1d. each. Reply, 1d. each half.
POST CARDS ...	{ Single, 1d. each. Reply, 1d. each half.
PRINTED PAPERS AS PRESCRIBED ...	$\frac{1}{2}$ d. per 2 ounces or part of 2 ounces.
BOOKS PRINTED OUTSIDE AUSTRALIA ...	$\frac{1}{2}$ d. per 4 ounces or part of 4 ounces.
BOOKS PRINTED IN AUSTRALIA ...	$\frac{1}{2}$ d. per 8 ounces or part of 8 ounces.
MAGAZINES.—Printed in Australia, for each magazine ...	$\frac{1}{2}$ d. per 8 ounces or part of 8 ounces.
MAGAZINES.—Printed outside Australia, for each magazine ...	$\frac{1}{2}$ d. per 4 ounces or part of 4 ounces.
HANSARD.—Reports of Parliamentary Debates	$\frac{1}{2}$ d. per 12 ounces or part of 12 ounces.
COMMERCIAL PAPERS, PATTERNS, SAMPLES, AND MERCHANDISE AS PRESCRIBED ...	1d. per 2 ounces or part of 2 ounces.
NEWSPAPERS (in bulk), posted by registered newspaper proprietors, or by newsvendors, or returned by an agent or newsvendor to the publishing office ...	1d. per 20 ounces on the aggregate weight of newspapers.
NEWSPAPERS.—Printed outside Australia ...	Magazine rates.
ALL OTHER NEWSPAPERS ...	For each newspaper, $\frac{1}{2}$ d. per 10 ounces or part of 10 ounces.

Whilst the bookkeeping sections of the Constitution Act were in force, each State had necessarily to use its own postage stamps, and stamps sold in one State were only allowed to be used on letters posted in that State. The necessity for this arrangement

disappeared with the change in the keeping of the Commonwealth accounts, and since the 14th October, 1910, stamps of any State can be affixed to letters, irrespective of the State in which they are posted. Stamps of a uniform design are now used throughout the Commonwealth.

(i.) *Letters.* Under the Postal Rates Act of 1910, the charge (1d. for every  $\frac{1}{2}$ -oz.) for letters posted for delivery within the Commonwealth is now uniform throughout all States. Previous to 1st May, 1911, various local and interstate rates were in operation within the States. The postage to the United Kingdom was reduced in January, 1891, from sixpence per half-ounce *via* the Red Sea, and fourpence *via* the Cape of Good Hope, to the uniform rate of twopence halfpenny. In 1891 the States were represented at the Congress of the Universal Postal Union held in Vienna, and on the 4th July a convention was signed on their behalf, by which they joined the Union from the 1st October of that year. On that date the rate of postage to all British possessions and to foreign countries included in the union was reduced to twopence halfpenny. The present charge for postage of interstate letters and of letters to the United Kingdom and to British possessions, including the captured (formerly German) islands in the Pacific, is uniformly one penny per half-ounce throughout the Commonwealth; the rate on letters to foreign countries (with the exception of New Hebrides, Banks and Torres Islands, where the rate is a penny per half-ounce) is twopence halfpenny for each half-ounce.

(ii.) *Newspapers.* The different rates charged for the carriage of newspapers in the various States, prior to Federation, continued after the control of the Postal Departments had been taken over by the Commonwealth, until the 1st November, 1902, when a uniform rate was imposed by the Post and Telegraph Rates Act 1902. At present the rates on all newspapers posted for delivery in the Commonwealth (without condition as to the number contained in each addressed wrapper posted) by registered newspaper proprietors, or by newsvendors, or returned by newsvendor or agent to the publishing office, is one penny per twenty ounces on the aggregate weight. On all other registered newspapers posted within the Commonwealth for delivery therein, the charge is a halfpenny per ten ounces for each newspaper. At the end of the year 1917 there were in all 1467 publications registered in the Commonwealth under section 29 of the Post and Telegraph Act 1901 for transmission by post as newspapers. The charge on postage of registered newspapers for transmission to the United Kingdom is one penny for each newspaper not exceeding eight ounces in weight by the ordinary route, and one penny for each newspaper not exceeding sixteen ounces in weight by the All-Sea route. To other parts of the world the rate is one penny up to four ounces, and a halfpenny for every additional two ounces. Newspapers which are not registered are charged at the same rates as other printed papers.

(iii.) *Parcels.* Parcels may not exceed 11 lbs. in weight, 3 ft. 6 in. in length, or 6 ft. in length and girth combined. The rate for the inland postage of parcels is sixpence up to 1 lb., and then threepence for every additional pound. For interstate transmission the rate is eightpence up to 1 lb., and then sixpence per lb., and for transmission to the United Kingdom the rate is one shilling up to 1 lb., and sixpence for every additional pound.

(iv.) *Packets.* The ordinary rate for the conveyance of packets is one penny for each two ounces. Packets must not as a rule exceed 2 ft. in length, 1 ft. in breadth or depth; or, if in a roll, 2 ft. 6 in. in length. Special rates are allowed for the conveyance of commercial papers, patterns, samples, etc.

**7. Registered Letters.**—Under section 38 of the Post and Telegraph Act 1901, provision is made for the registration of any letter, packet, or newspaper upon payment of a fee of threepence, and any person who sends a registered article by post may obtain an acknowledgment of its due receipt by the person to whom it is addressed by paying an additional fee of twopence halfpenny in advance at the time of registration.

*Number of Registered Articles Posted.* The subjoined table shows the number of registered articles posted in each State during the year 1916-17, classified according to the places to which they were despatched for delivery:—

#### NUMBER OF REGISTERED ARTICLES POSTED DURING 1916-17.

State.	Posted in each State for Delivery within that State.		Posted in each State for Delivery in other States.		Posted in each State for Delivery in Places outside the C'wealth.		Total.	
	Number (,000 omitted).	Per 1000 of Population.	Number (,000 omitted).	Per 1000 of Population.	Number (,000 omitted).	Per 1000 of Population.	Number (,000 omitted).	Per 1000 of Population.
New South Wales ...	1,389	746	201	108	153	82	1,743	937
Victoria ...	1,062	759	166	119	93	66	1,321	944
Queensland ...	576	860	110	164	50	75	736	1,099
South Australia ...	268	614	52	119	19	44	339	776
Western Australia ...	354	1,146	37	120	40	130	431	1,396
Tasmania ...	153	765	31	155	10	50	194	970
Commonwealth ...	3,802	780	597	122	365	75	4,764	977

8. *Ocean Mail Services.*—Regular steamship communication between Australia and Europe was established in 1852 by a service run by the Peninsular and Oriental Company between Singapore and Sydney, *via* King George's Sound, Adelaide, and Melbourne. This service was inaugurated in September, 1852, by the arrival at Melbourne of the *Chusan*, and was continued until 1854, when it was stopped in consequence of the Crimean War; in 1856 a line of steamers was again started, and the service was carried on by the Peninsular and Oriental Company, in conjunction with the Royal Mail Company, for some years.

(i.) *Mail Route via San Francisco.* The service *via* the Red Sea did not at that time give much satisfaction to the public, and was looked upon with a certain amount of disfavour in New South Wales and New Zealand. The effect was to stimulate the colonists to agitate for an improved service, and proposals were made for the establishment of a line of mail packets from Sydney to Panama *via* Wellington, by rail across the isthmus, and thence to Great Britain. The result was that in 1866 the line was started, and continued in operation until the end of 1868, when it was terminated through the failure of the company by which it had been carried out. The completion of the railway across the American continent in 1869, with its western terminus at San Francisco, opened up a new and agreeable route, and in that year a monthly service was inaugurated by the Union Steamship Company, in conjunction with the Pacific Steamship Company, from Sydney to San Francisco *via* Auckland. This service was subsidised to the extent of £37,000 per annum, of which New South Wales paid £25,750 and New Zealand £11,250, and was continued until November, 1890, when a new contract was entered into and the amount of the subsidy largely reduced, the amount of the contribution being based upon the weight of mail matter carried. Various extensions of the contract were made, but the last agreement made between the New Zealand Government and the Oceanic Steamship Company of San Francisco expired on the 10th November, 1906, and has not since been renewed. From that date mails were carried at Postal Union rates until the 12th April, 1907, when the service was discontinued. At present mails to and from Europe are carried by the Union Steamship Company, which receives a subsidy from the New Zealand Government, with a four-weekly service;

and by the Oceanic Company, with a three-weekly service. Postal Union rates are charged in respect of Australian mails conveyed by the Union Company, and poundage rates in the case of the Oceanic Company.

(ii.) *Route via Suez Canal.* The establishment of a mail route *via* America had the effect of stimulating the steamship owners who were engaged in the service *via* Suez, and from that time there was a marked improvement in the steamers, as well as in the punctuality and speed with which the mails were delivered. The Peninsular and Oriental Company, and, at a little later date, the Orient-Pacific Company, have carried mails to and from Australia almost since the inception of ocean steam services. Postal matter was carried by contract until 1905, when the contract between the Peninsular and Oriental Company and the Commonwealth Government ceased, although that between the company and the Imperial Post Office is still in force. Until discontinued, owing to the war, mails were carried from Australia by the Peninsular and Oriental Company, but at Postal Union rates and not under contract with the Commonwealth. On the 25th April, 1905, the Orient-Pacific Company concluded a new contract with the Commonwealth Government for a fortnightly service between England and Australia. The subsidy was at the rate of £124,880 per annum. This contract has now been replaced by the present mail contract referred to in the next sub-section hereof. Fremantle has, since the year 1900, been the first and last port of call for European mail steamers, in lieu of Albany, the original port of call. The Peninsular and Oriental and Orient Steam Navigation Companies' steamers, before the outbreak of war in 1914, sailed alternately every week, both from London and Australia, conveying the outward and homeward mails. At the present time the P. & O. service is suspended, while the Orient service, though not actually discontinued, is very limited, and is carried on by the Cape route instead of *via* the Suez Canal.

(a) *Present Mail Contract.* On the 1st January, 1906, tenders were invited by the Commonwealth Postmaster-General for a fortnightly mail service between Adelaide and Brindisi, to alternate with a similar service to be provided by the Imperial Government, and a contract was entered into with Sir James Laing and Company Limited, providing for a service at an annual subsidy of £125,000. This contract, however, fell through, and new tenders were accordingly called for. On the 15th November, 1907, an agreement was entered into with the Orient Steam Navigation Company Limited providing for a fortnightly service for a period of ten years, commencing in February, 1910. The mail service was to be carried out by existing vessels belonging to the company and by five new mail ships, which have been specially built, and which are each over 12,000 tons gross registered tonnage and of not less than seventeen knots speed. An additional new vessel was to be added within eighteen months, and another within six years, from February, 1910, and the first of these—the *Orama*—entered into running during November, 1911. War conditions have, however, delayed the addition of the later vessel to the mail fleet. The vessels are to call at Fremantle, Adelaide, Melbourne, Sydney, and Brisbane, and at least six of them at Hobart, during the months of February to May inclusive. The voyage from Taranto to Adelaide is to be completed within twenty-six days, fourteen hours, and from Adelaide to Taranto within twenty-seven days, two hours, but the latter period may be exceeded by thirty-six hours during the prevalence of the south-west monsoon. The amount of the subsidy is fixed at £170,000 per annum; but, if the earnings of the company be decreased, or the expenses increased, by reason of any Commonwealth shipping legislation passed subsequently to the date of the agreement, to the extent of not less than £5000 a year, the contractors have the right to terminate the agreement unless the subsidy is increased. Insulated space of not less than 2000 tons of forty cubic feet is to be provided in each of the new vessels, and the freights are not to exceed one halfpenny per lb. for butter and sixty shillings per ton for fruit. White labour only is to be employed, and no discrimination is to be made between unionists and non-unionists. If before or during the sixth year of the period of the contract an accelerated service is provided by any competing line of mail ships, the contractors must, if so required by the Postmaster-General, provide a service equal to the

competing service, at an increased subsidy, to be determined by agreement or arbitration. With the expiration of the period in 1916, this clause in the agreement lapsed. The Commonwealth flag must be flown on the mail ships, which the Commonwealth has the right to purchase at a valuation at any time. Within six months of the Postmaster-General establishing a permanent wireless telegraphy station at Rottnest Island, or at any point on the coast between Fremantle and Brisbane, the company must fit the mail ships with wireless telegraphy installations. The new service was inaugurated on the 11th February, 1910.

(b) *French and German Subsidised Mail Services.* Vessels belonging to the Messageries Maritimes and the Norddeutscher Lloyd, which were under contract respectively with the French and German Governments to convey mails monthly between Marseilles and New Caledonia and between Bremen and Sydney, *via* Genoa, also carried mails for the Commonwealth Government from Australia to Europe at Postal Union rates. The Messageries Maritimes service commenced in November, 1882; the amount of the annual subsidy granted by the French Government being £120,000. The vessels have, however, for the time being, been withdrawn from the Australian service. The first contract for the establishment and maintenance of a mail steamship line between Germany and Australia was made between the Imperial German Government and the Norddeutscher Lloyd in 1885, and the service was inaugurated in July, 1886, with the steamer *Salier*. The service afforded by German vessels was, of course, interrupted by the outbreak of hostilities in Europe in 1914.

(iii.) *Route via Vancouver and Canadian-Pacific Railway.* During the year 1893 a direct monthly service was started between Sydney and Vancouver, in British Columbia, *via* Wellington, in New Zealand, and thence to Liverpool *via* the Canadian-Pacific Railway, the New South Wales Government paying an annual subsidy of £10,000 for the maintenance of this service for a period of three years. In 1896 the agreement was renewed for a further period of three years, and in 1899 was again renewed for four years, subject to the same terms and conditions, except that the route was *via* Brisbane instead of Wellington. The contract was further extended, at an increased subsidy, from time to time until the 31st July, 1911, at a subsidy of £26,626 per annum. This subsidised service has now been discontinued. Mails for Canada are forwarded *via* New Zealand through Sydney at poundage rates.

(iv.) *Other Ocean Mail Services.* In addition to the mails *via* the Suez Canal, a number of other services, both regular and irregular, are maintained between the Commonwealth and various parts of the world, and also between the principal ports in the various States and a number of small ports in the less settled parts of the Commonwealth which are inaccessible by rail. The following statement gives a summary, in so far as returns are available, of all mail services maintained between the Commonwealth and other countries and between ports in the Commonwealth. The amounts of subsidies specified are the amounts payable per annum unless otherwise stated:—

#### SUMMARY OF COMMONWEALTH MAIL SERVICES, 1918.

Description of Service.	Frequency of Service.	Ports between which Service is maintained.	Particulars regarding Subsidies.
1. <i>To and from Europe, via Suez—</i>			
Orient Steam Navigation Co.*	Irregular Intervals	Adelaide, Fremantle & London, <i>via</i> South Africa	Subsidised. Date of agreement, 15th Nov., 1907. Term, from Feb., 1910. Amt. of subsidy, £170,000.

\* Owing to the war, the steamers of this company temporarily travel *via* Capetown instead of Suez Canal.

## SUMMARY OF MAIL SERVICES—(Continued).

Description of Service.	Frequency of Service.	Ports between which Service is maintained.	Particulars regarding Subsidies.
2. <i>To and from Europe, via Vancouver</i> — Union Steamship Co. ...	Every four weeks	Sydney and Vancouver, B.C., via Auckland, Fiji, Honolulu, and once every four weeks to Fanning Island	Poundage rates.
3. <i>To and from Europe, via San Francisco</i> — (a) Union Steamship Company ...	..	Sydney, Wellington and San Francisco	Subsidised by New Zealand Govt. Mails from Aust. at Postal Union rates.
(b) Oceanic Steamship Co. ...	Every three weeks	Sydney, Apia, Honolulu, and San Francisco	Poundage rates.
4. <i>To and from New Zealand</i> — (a) Conjointly by Union S.S. Co. and Huddart, Parker Ltd.	Bi-weekly	Sydney and Wellington, Sydney and Auckland	.. ..
(b) Other Steamers ...	Irregularly, when convenient	Sydney, Wellington, Auckland, and Lyttelton	.. ..
5. <i>To and from ports in N.S. Wales</i> — (i.) NORTHERN PORTS— (a) North Coast S.N. Co. ...	Weekly Twice weekly	Sydney, Macleay River, Coff's Harbour, Clarence River, Byron Bay, and Richmond River	.. ..
(b) Cain's Co-Operative S.S. Co....	Twice a month	Sydney & Port Macquarie	.. ..
(ii.) SOUTH COAST PORTS— Illawarra and S. Coast S.N. Co....	Weekly	Sydney, Montague Island	.. ..
6. <i>To and from Northern Ports of Qld.</i> — (a) Australian Steamships Limited	Weekly	Gladstone, Mackay, Bowen, Townsville, Cairns, Cardwell, Mourilyan, Innisfail, Pt. Douglas & Cooktown	Subsidised by agreement dated 5th Dec., 1914, for three years. Extended two years from 5th Dec., 1917. Amount of subsidy, £17,950.
(b) Australian United Steam Navigation Co. Ltd.	Once every four weeks	Brisbane, Normanton & Burketown, via Townsville, Cooktown, and Thursday Island	Subsidised by agreement dated 16th Jan., 1915, for five years. Amount of subsidy, £6500. Frequency altered from once in three to once in four weeks from 4th Oct., 1917, and Subsidy reduced to £6000. Subsidies under 6 (a) and (b) paid by Queensland.
(c) Other steamers ...	Irregularly	Various...	Poundage rates.
7. <i>To and from Ports in S. Australia</i> — (a) Coast Steamship Co. Ltd. ...	Weekly	Pt. Adelaide & Kingscote	Subsidised to 31st December, 1919. Amount of subsidy, (a) £900; (b) £350; (c) £450; (d) £350. Subsidised for three years from 1st January, 1917. Amount of subsidy, £3000. Subsidised without agreement. Amount of subsidy, £120. Subsidies under 7 (a), (b), (c), (d), (e), (f), paid by South Australia.
(b) " " " ...	Twice a wk.	" Edithburgh	
(c) " " " ...	"	" Stansbury	
(d) " " " ...	"	" Pt. Vincent	
(e) Adelaide Steamship Co. ...	Weekly	" Pt. Lincoln	
(f) Adelaide Steam Tug Co. ...	As required	Port Pirie & Hummocks Hill	
8. <i>Western Australia</i> — (i) INTERSTATE— (a) Orient Line ...	In abeyance	Fremantle and Adelaide	Orient line subsidised. See above, 1.
(b) The Australian United Steam Navigation, Huddart Parker, Melbourne S.S. Co., and McIlwraith, McEacharn lines	Three times in four weeks.	Fremantle, Albany, and Adelaide	Poundage rates.

† Carries also mails to Canada and the United States.

## SUMMARY OF MAIL SERVICES—(Continued).

Description of Service.	Frequency of Service.	Ports between which Service is maintained.	Particulars regarding Subsidies.
<i>Western Australia—continued—</i>			
(ii.) To & FROM PORTS ON N.W. COAST			
(a) State Steamship Service ...	Monthly	Fremantle and Derby	Subsidised by agreement dated 28th February, 1913, for three years. Later extended to a date three months after expiration of war. Amount of subsidy, £5500. Subsidy paid by Western Australia.
(b) " " ...	Once each sixty days	Fremantle & Darwin	
(c) West Australian S.N. Co.	Fortnightly	Fremantle and Broome	
(d) Ausn. United S. Navigation and State S.S. Co. and Melbourne S.S. Coy. ...	Irregularly, during the cattle season	Fremantle, Derby, and Wyndham	" "
(iii.) To AND FROM PORTS ON S. COAST			
(a) State Steamship Service ...	Fortnightly	Albany and Esperance	Subsidised by agreement for three years, dating from 1st July, 1915. Amount of subsidy, £2000
(b) " " ...	Every four weeks	Albany & Israelite Bay	
(c) " " ...	Quarterly	Albany and Eucla	
9. Tasmania—			
(a) Union S.S. Co. and Huddart, Parker Proprietary	Three times a week	Melb'rne & Launceston	Subsidised by agreement dated 27th October, 1913, for five years. Amount of subsidy, £15,000, provided new steamer similar to <i>t.s. Loongana</i> is run on Launceston-Melbourne service. £13,000 only to be paid prior to running of new steamer.
(b) " " " ...	Twice a wk.	" Burnie	
(c) " " " ...	Weekly	Sydney, Hobart, and Wellington	Poundage rates.
(d) Union Steamship Co.	Fortnightly	Sydney, Eden, Launceston, and Devonport	" "
(e) To and from ports in Western districts	Weekly	Hobart and Strahan	" "
(f) Holyman and Sons Ltd.	"	Melbourne, Burnie, etc.	" "
(g) " " ...	Twice a wk.	Hobart & Maria Island	Subsidised by agreement dated 1st January, 1916, for three years. Amount of subsidy, £25 per annum.
(h) Holyman & Sons Ltd.	Every three weeks	Launceston and Furneaux group of Islands	
(i) King Island Steamers Ltd.	Fortnightly	Launceston and King Island	Subsidised by agreement dated 1st January, 1916, for three years. Amount of subsidy, £300 per annum.
10. To and from Northern Territory—			
(a) The Eastern and Ausn., and the China Navigation Co.	Irregularly	(To and from Adelaide, Melb'rne, and Sydney, via North Queensland ports, extending to China and Japan	Poundage rates.
(b) Burns, Philp and Co.	Monthly		
(c) Royal Dutch Packet S.N. Co.	Irregularly	Melbourne to Darwin, via North Queensland ports en route to Java	Poundage rates.
(d) State Steamship Service of Western Australia	Every two months	Fremantle and Darwin	Subsidised by Western Australian Government.

## SUMMARY OF MAIL SERVICES—(Continued).

Description of Service.	Frequency of Service.	Ports between which Service is maintained.	Particulars regarding Subsidies.
<b>11. To Eastern Ports—*</b>			
(a) Burns, Philp & Co. ...	Monthly	Sydney, Sourabaya, Samarang, Batavia, and Singapore	Subsidised by N.S.W. Govt. Mails at poundage rates.
(b) China Navigation, Eastern & Ausn., and Burns, Philp Co.'s	About three times a month	Sydney, to Hong Kong, Manila, etc., via North Queensland ports	Poundage rates.
(c) Nippon Yusen Kaisha ...	Monthly	Sydney to Manila, China, and Japan, via N. Queensland ports	Postal Union rates.
(d) Royal Dutch Packet S. N. Co.	Monthly	Melbourne to Java, via Sydney and Queensland ports	Poundage rates.
(e) Various other steamers ...	About monthly	Sydney or Newcastle and ports in Borneo, Java, Sumatra, and Malay Peninsula	" "
(f) W.A.S.N. Co. ...	Fortnightly	W.A. Ports, Java, and Singapore	" "
<b>12. South Africa—</b>			
(a) White Star, P. & O. Branch Service, and other Companies	Irregularly	Various ...	" "
(b) Orient Line ...	Four times a year.	Adelaide and Capetown	" "
<b>13. North America—</b>			
(a) Various steamers ...	Irregularly	Sydney or Newcastle to San Francisco	Poundage rates.
(b) Various steamers ...	"	Sydney to Guaymas (Mexico)	" "
(c) Union S.S. Co. ...	13 voyages yearly	Syd., Wellington, Tahiti and San Francisco	" "
(d) " " ...	Every four weeks	Sydney, Auckland, Fiji and Vancouver	" "
(e) Oceanic S.S. Co. ...	Every three wks.	Sydney, Samoa, Pago Pago & San Francisco	" "
<b>14. South America—</b>			
Oceanic S.S. Co. ...	Four times a month	Sydney or Newcastle via San Francisco to ports in Chile, Brazil, Peru, Uruguay, and Argentina	Poundage rates.
Union S.S. Co. ...			
<b>15. Pacific Islands—</b>			
(a) Burns, Philp and Co. ...	Monthly	Sydney to Lord Howe & Norfolk Islands, N. Hebrides	Subsidised by Commonwealth at £19,850 per annum.
(b) " " ...	Every two months	Sydney to Gilbert and Marshall Islands	
(c) " " ...	Every six weeks	Papua	
(d) " " ...	"	Solomon Islands	
(e) Royal Dutch Packet S. N. Co.	Irregularly	Melbourne to Papua via Sydney and Queensland ports	Poundage rates.
(f) Pacific Phosphate Co. Ltd. ...	Four times a year	Rabaul and Nauru	Contract with Defence Department.
<b>16. Noumea—</b>			
(a) Messageries Maritimes ...	Monthly	Sydney and Noumea and to Vila (New Hebrides)	Postal Union rates.
(b) Other steamers ...	About fortnightly	Sydney and Noumea	Poundage rates.
<b>17. Fiji—</b>			
(a) Union S.S. Co. ...	Monthly	Sydney and Suva	" "
(b) " " ...	"	Sydney, Auckland, Suva, Tonga, and Samoa	" "
(c) A.U.S.N. Co. ...	"	Sydney and Suva	" "
<b>18. Fiji and Noumea—</b>			
Burns, Philp and Co. ...	"	Sydney and Suva	" "
<b>19. Ocean and Pleasant Islands—</b>			
Various steamships ...	"	Sydney, Ocean and Pleasant Islands	" "

\* Frequency of services not maintained owing to exigencies of war.



9. **Amount of Mail Subsidies Paid.**—The following table shows the amounts of subsidies paid by the Commonwealth Postal Department for ocean and coastal mail services during the year ended 30th June, 1917 :—

**MAIL SUBSIDIES.—OCEAN AND POSTAL SUBSIDIES DURING YEAR 1916-17.**

Service...	Orient S.N. Co.	Queensl'd Ports.	South Australian Ports.	Western Australian Ports.	Tasmanian Ports.
Annual Subsidy	£ 26,154	£ 24,450	£ 5,050	£ 7,513	£ 13,485

During the year 1916-17 the amount paid by the Commonwealth for conveyance of mails at poundage rates by non-contract vessels was £41,428; by road services, £458,056; and by railway services, £373,667. The total expenditure in 1916-17 on the carriage of mails, including the items and subsidies specified and sundry other payments, was £1,247,763.

10. **Average and Fastest Time of Mails to and from London.**—Great progress has been made in regard to the means of postal communication with the United Kingdom and the continents of Europe and America. In 1857 there was an unsatisfactory ocean mail service, which nominally brought monthly mails, with news nearly sixty days old; before the outbreak of the war there were four lines of modern ocean steamships, which brought the mails in about twenty-nine days to Adelaide, in addition to services by way of New Zealand, *via* San Francisco and Vancouver. Upon the arrival of over-sea mails at Fremantle, letters for the eastern States and New Zealand are now landed, and the Australian letters are conveyed to their several destinations by rail. By landing at Fremantle instead of as formerly at Adelaide, a saving of approximately sixty-six hours is effected. It is probable that at the conclusion of the war all mails arriving by P. & O. and Orient steamers will be conveyed by rail from Fremantle. In consequence of the war in Europe, steamers belonging to the Orient S.N. Co. travel to and from England by way of South Africa. The subjoined table shews the average and the fastest times occupied in the conveyance of mails from London to Adelaide and *vice versa* during the year 1916-17 :—

**AVERAGE AND FASTEST TIME OCCUPIED IN CONVEYANCE OF MAILS VIA SOUTH AFRICA AND SUEZ CANAL BETWEEN LONDON AND ADELAIDE, AND VICE VERSA, DURING 1916-17.**

Service.	London to Adelaide.*				Adelaide to London.			
	Average Time.		Fastest Time.		Average Time.		Fastest Time.	
	Days.	Hours.	Days.	Hours.	Days.	Hours.	Days.	Hours.
Orient S. N. Co., <i>via</i> South Africa ...	44	20	40	6	49	19	41	7
Peninsular and Oriental S.N. Co., <i>via</i> Marseilles ...	41	15	33	14	41	11	33	22

\* Letters for Eastern States now landed at Fremantle.

At present a train departing from Perth for the eastern States at 5 p.m. on, say, Monday, arrives at Adelaide at 3.37 p.m. on Thursday, at Melbourne at 9.55 a.m. on Friday, at Sydney at 10.45 a.m. on Saturday, and at Brisbane at 6.40 p.m. on Sunday. The time over all between Perth and Brisbane is 143 hours 40 minutes, of which the stops at changing stations take 18 hours 31 minutes. The journey from Melbourne to Hobart occupies about 26 hours *via* Launceston, and about 32 hours direct.

The average time occupied in the conveyance of mails from London to Sydney *via* Vancouver is a little over 37 days, and from Sydney to London by the same route nearly 35. A table shewing the average and fastest times of this service was given in earlier issues (see Year Book No. 5, p. 766), but the discontinuance of the contract with the company operating between Australia and Vancouver renders the table no longer desirable.

**11. Money Orders and Postal Notes.**—The issue of money orders and postal notes in the Commonwealth is regulated by sections 74 to 79 of the Post and Telegraph Act 1901. A money order may be issued for payment of sums up to £20 within the Commonwealth and not exceeding £40 (in some cases £30, £20 or £10) in places abroad. A postal note, which is payable only within the Commonwealth, cannot be issued for a larger sum than twenty shillings. Money orders are sent direct from the Commonwealth to the United Kingdom, and to most of the British colonies and possessions; to the British Solomon Islands Protectorate and the Gilbert and Ellice Islands Protectorates; to Italy; and to the United States of America. Money orders, payable in Japan and China, are sent *via* Hong Kong; orders payable in all other countries are sent through the General Post Office in London, where new orders are issued and forwarded to the addresses of the payees, less threepence for every £5, or part thereof. In order that the full amount of the original order may be forwarded to the payee, this extra commission must be paid by the remitter.

(i.) *Value of Orders Issued and Paid and of Notes Sold.*—The following table shews the total value of money orders issued and paid, and of postal notes sold in each State and in the Commonwealth during the year 1916-17, together with the total amount of commission on money orders and poundage on postal notes received by the Postal Department. The number and value of money orders issued and paid within the Commonwealth shews a decrease as compared with 1915-16, accounted for by the discontinuance of the payment by money order of military allotments:—

**VALUE OF MONEY ORDERS ISSUED AND PAID AND OF POSTAL NOTES SOLD, AND TOTAL AMOUNTS OF COMMISSION AND POUNDAGE RECEIVED IN EACH STATE DURING 1916-17.**

State.	Value of Money Orders Issued.	Value of Money Orders Paid.	Net Money Order Commission Received.	Value of Postal Notes Sold.	Poundage Received on Postal Notes.
	£	£	£	£	£
New South Wales ...	4,527,557	4,389,944	27,866	1,443,113	28,127
Victoria ...	2,046,113	2,213,594	10,116	884,586	17,922
Queensland ...	1,478,943	1,236,758	10,612	385,950	7,634
South Australia ...	704,904	626,546	4,519	219,071	4,456
Western Australia ...	1,115,735	916,348	6,719	226,366	4,360
Tasmania ...	411,451	373,677	2,573	114,331	2,325
Commonwealth ...	10,284,703	9,756,867	62,405	3,273,417	64,824

(ii.) *Rates of Commission on Money Orders.* The rates of commission chargeable for the issue of money orders are as follows:—

**RATES OF COMMISSION, MONEY ORDERS.**

If Payable in—	For sums—								
	Not exceeding £2.	Exceeding £2, but not exceeding £5.	Exceeding £5, but not exceeding £7.	Exceeding £7, but not exceeding £10.	Exceeding £10, but not exceeding £12.	Exceeding £12, but not exceeding £15.	Exceeding £15, but not exceeding £17.	Exceeding £17, but not exceeding £20.	
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	
Commonwealth of Australia ...	0 6	0 6	1 0	1 0	1 6	1 6	2 0	2 0	
New Zealand and Fiji ...	0 6	1 0	1 6	2 0	2 6	3 0	3 6	4 0	
Papua ...	0 9	0 9	1 6	1 6	2 3	2 3	3 0	3 0	
U. Kingdom & other countries	Sixpence for any amount up to £2 and 3d. for each additional £1 or fraction thereof.								

Remittances may also be made by telegraph to and from money order offices in the Commonwealth which are also telegraph or telephone offices, and to New Zealand. The charge for a telegraph money order is the cost of the telegram of advice in addition

to the ordinary commission. Where payment is to be made within the Commonwealth the remitter must also send a telegram advising the transmission of the money, which telegram must be produced by the payee when applying for payment. In the case of New Zealand a second telegram is not required, but an additional charge of sixpence is made by the Department to cover the cost of notifying the payee.

(iii.) *Rates of Poundage on Postal Notes.* The values of the notes issued have been so arranged that any sum of shillings and sixpences up to £1 can be remitted by not more than two of these notes. The poundage or commission charged on notes of different denominations is as follows :—

#### POUNDAGE RATES, POSTAL NOTES.

Denomination of Note ...	6d. to 1s. 6d.	2s. to 4s. 6d.	5s.	7s. 6d.	10s. to 20s.
Poundage charged ...	$\frac{1}{2}$ d.	1d.	$1\frac{1}{2}$ d.	2d.	3d.

12. **Number and Value of Money Orders and Postal Notes Issued and Paid.**—The following table shows the total number and face value of money orders and postal notes issued and paid in the Commonwealth during 1901 and from 1911 to 1916-17 :—

#### NUMBER AND VALUE OF MONEY ORDERS AND POSTAL NOTES ISSUED AND PAID, 1901 and 1911 to 1916-17.

Year.	Money Orders.				Postal Notes.			
	Issued.		Paid.		Issued.		Paid.	
	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.
	No. (,000).	£ (,000).	No. (,000).	£ (,000).	No. (,000).	£ (,000).	No. (,000).	£ (,000).
1901 ...	1,318	4,193	1,339	4,081	3,515	1,292	3,522	1,293
1911 ...	1,583	6,584	1,448	6,455	8,042	3,017	8,042	3,017
1912 ...	1,822	7,417	1,557	6,886	8,608	3,259	8,533	3,235
1913 ...	2,091	8,750	1,814	8,133	9,425	3,551	9,341	3,527
1914 ...	2,062	8,858	1,823	8,326	9,881	3,680	8,893	3,671
1915-16	3,007	12,336	2,904	11,815	9,536	3,292	9,517	3,316
1916-17	2,293	10,285	2,105	9,757	9,663	3,273	9,549	3,265

13. **Classification of Money Orders Issued and Paid.**—The following table shows the number and value of money orders issued in each State during the year 1916-17, classified according to the country where payable :—

#### MONEY ORDERS ISSUED IN EACH STATE, CLASSIFIED ACCORDING TO COUNTRY WHERE PAYABLE, 1916-17.

State in which Issued.	Where Payable.				Total.
	In the Com- monwealth.	In New Zealand.	In the United K'dom.	In Other Countries.	
NUMBER.					
New South Wales	880,320	17,339	97,821	16,946	1,012,426
Victoria ...	350,839	8,733	49,941	10,834	420,347
Queensland ...	294,760	2,992	35,453	8,454	341,659
South Australia ...	144,610	1,381	17,978	4,094	168,063
Western Australia	220,930	1,629	27,548	4,854	254,961
Tasmania ...	86,375	1,979	5,584	1,274	95,212
Commonwealth	1,977,834 <sup>0</sup>	34,053	234,325	46,456	2,292,668

## MONEY ORDERS ISSUED IN EACH STATE, Etc.—(Continued).

State in which Issued.	Where Payable.				Total.
	In the Commonwealth.	In New Zealand.	In the United Kingdom.	In Other Countries.	
VALUE.					
	£	£	£	£	£
New South Wales	4,110,811	52,870	259,691	104,185	4,527,557
Victoria ...	1,847,019	27,957	110,219	60,918	2,046,113
Queensland ...	1,315,637	8,591	87,271	67,444	1,478,943
South Australia ...	634,532	4,634	41,374	24,364	704,904
Western Australia	1,017,211	6,022	63,204	29,298	1,115,735
Tasmania ...	388,245	8,084	12,000	3,122	411,451
Commonwealth	9,313,455	108,158	573,759	289,331	10,284,703

The following table shews the number and value of money orders paid in each State during the year 1916-17, classified according to the country where issued :—

## MONEY ORDERS PAID IN EACH STATE, CLASSIFIED ACCORDING TO COUNTRY OF ISSUE, 1916-17.

State in which paid.	Where Issued.				Total.
	In the Commonwealth.	In New Zealand.	In the United K'dom.	In Other Countries.	
NUMBER.					
New South Wales	865,320	32,623	18,494	12,247	928,684
Victoria ...	421,983	20,955	11,695	6,844	461,477
Queensland ...	269,333	1,918	4,329	2,762	278,342
South Australia ...	140,603	1,731	3,288	1,219	146,841
Western Australia	195,160	2,429	5,515	1,387	204,491
Tasmania ...	77,895	3,997	1,425	1,436	84,753
Commonwealth	1,970,294	63,653	44,746	25,895	2,104,588
VALUE.					
	£	£	£	£	£
New South Wales	4,192,896	93,002	58,931	45,115	4,389,944
Victoria... ..	2,091,709	61,068	37,861	22,956	2,213,594
Queensland ...	1,202,390	8,640	16,628	9,100	1,236,758
South Australia ...	606,053	5,705	10,150	4,638	626,546
Western Australia	888,786	5,795	15,845	5,922	916,348
Tasmania ...	353,380	12,239	4,286	3,772	373,677
Commonwealth	9,335,214	186,449	143,701	91,503	9,756,867

In the above tables money orders payable or issued in foreign countries, which have been sent from or to the Commonwealth through the General Post Office at London, are included in those payable or issued in the United Kingdom.

14. **Classification of Postal Notes Paid.**—The subjoined table shews the number and value of postal notes paid during the year 1916-17 in each State and in the Commonwealth, classified according to the State in which they were issued.

Particulars regarding the total number and value of postal notes issued and paid during previous years since the inauguration of the Commonwealth have already been given in paragraph 12 hereof.

**NUMBER AND VALUE OF POSTAL NOTES PAID, CLASSIFIED ACCORDING  
TO STATE OF ISSUE, 1916-17.**

Particulars.	Postal Notes Paid in—						
	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
<b>NUMBER.</b>							
Issued in same State ...	3,104,202	2,087,326	877,130	497,127	532,868	268,534	7,367,187
Issued in other States ...	333,674	348,019	69,258	61,824	21,947	1,346,981	2,181,703
<b>Total ...</b>	<b>3,437,876</b>	<b>2,435,345</b>	<b>946,388</b>	<b>558,951</b>	<b>554,815</b>	<b>1,615,515</b>	<b>9,548,890</b>
<b>VALUE.</b>							
	£	£	£	£	£	£	£
Issued in same State ...	1,125,817	689,222	301,884	155,723	200,090	88,061	2,560,797
Issued in Other States ...	120,372	127,684	25,532	24,628	8,481	397,681	704,378
<b>Total ...</b>	<b>1,246,189</b>	<b>816,906</b>	<b>327,416</b>	<b>180,351</b>	<b>208,571</b>	<b>485,742</b>	<b>3,265,175</b>

**15. The Value Payable Post.**—This is a system under which the Postal Department undertakes to deliver registered articles sent by parcel post within the Commonwealth, or between Papua and the Commonwealth, and to recover from the addressee on delivery a specified sum of money fixed by the sender, and to remit the sum to the sender by money order, for which the usual commission is charged. The object of the system is to meet the requirements of persons who wish to pay at the time of receipt for articles sent to them, and also to meet the requirements of traders and others who do not wish their goods to be delivered except on payment. In addition to the ordinary postage, commission on the value of the articles transmitted at the rate of twopence on sums not exceeding ten shillings, and one penny for each additional five shillings or part thereof, must be prepaid by postage stamps affixed to the articles, distinct from the postage, and marked "commission." The registration fee (threepence) and the proper postage must also be prepaid. If the addressee refuse delivery, the parcel is returned to the sender free of charge. Any article that can be sent by parcel post may be transmitted as a value-payable parcel. Letters may also be sent as value-payable parcels, if prepaid at the letter rate of postage and handed to the parcels clerk, in the same manner as in the case of parcels. The subjoined statement gives particulars of the number and value of parcels sent through the Value Payable Post in each State during the years 1910 to 1916-17. From these figures it will be seen that the business in Queensland is greatly in excess of the combined transactions of all the other States, owing to the fact that the system has been established in that State for some years, but was only extended to the whole Commonwealth with the advent of Federal control of the post office. Western Australia is the only other State to make use of this system to any extent, the business transacted by that State and Queensland in 1916-17 amounting to about 80 per cent. of the total for the Commonwealth in respect of number of parcels and also of value collected.

**VALUE PAYABLE PARCELS POST.—NUMBER POSTED, VALUE COLLECTED,  
AND REVENUE, 1910 to 1916-17.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
<b>NUMBER OF PARCELS POSTED.</b>							
	No.	No.	No.	No.	No.	No.	No.
1910	7,901	894	34,917	214	21,940	110	65,976
1911	9,198	1,142	37,803	195	21,391	66	69,795
1912	10,210	1,072	44,973	395	21,821	41	78,512
1913	12,175	1,691	39,434	255	22,335	8	75,898
1914	12,987	1,698	37,657	251	22,759	26	75,378
1915-16	13,979	1,395	45,467	206	22,108	35	83,190
1916-17	16,794	1,530	53,585	318	22,427	28	94,682

<b>VALUE COLLECTED.</b>							
	£	£	£	£	£	£	£
1910	14,736	1,656	43,478	238	34,697	344	95,199
1911	15,314	2,312	52,628	413	35,659	165	106,491
1912	13,053	2,160	53,061	827	37,307	92	106,500
1913	14,881	2,857	53,461	435	35,945	20	107,599
1914	20,181	3,412	51,205	872	36,972	27	112,669
1915-16	20,214	2,095	50,917	451	35,239	61	108,977
1916-17	24,268	2,704	74,418	463	35,496	56	137,405

**REVENUE, INCLUDING POSTAGE, COMMISSION ON VALUE, REGISTRATION AND  
MONEY ORDER COMMISSION.**

	£	£	£	£	£	£	£
1910	1,201	162	4,634	19	3,178	18	9,212
1911	1,087	225	5,241	28	2,943	9	9,533
1912	1,147	143	5,418	54	3,027	6	9,795
1913	1,343	261	5,113	30	3,124	1	9,872
1914	1,618	304	4,901	47	3,108	3	9,981
1915-16	1,715	183	5,793	33	3,022	3	10,749
1916-17	2,154	190	6,779	39	3,060	4	12,226

In 1905, the first year for which complete figures for the Commonwealth are available, the number of value payable parcels posted was 24,920, of an aggregate value of £34,990. By 1916-17 the increase in number was 69,762 and in value £102,415. The States chiefly responsible for the increase are Queensland, Western Australia, and New South Wales. The average value collected on parcels in 1905 was £1 8s., and in 1916-17 £1 9s. These averages are fairly representative of the intervening years, the fluctuations throughout being inappreciable. The average value payable by the addressees in each State for the seven years 1910 to 1916-17 was highest in the case of Tasmania, viz., £2 9s., next in order being South Australia £2 1s., Victoria £1 17s., Western Australia, £1 12s., New South Wales £1 9s., and Queensland £1 6s. The average for the Commonwealth for the same period was £1 9s.

**16. Agricultural Produce Parcels Post.**—On the 1st July, 1914, the Postal Department, acting in conjunction with the Railway Department, inaugurated a system under which parcels of agricultural produce, fish, cut flowers, etc., might be transmitted at cheap rates from places in the country to persons living within six miles of the General Post Office, Melbourne. The service was introduced, by way of experiment, into the State of Victoria only, but as a loss of £3000 per annum was incurred, the service has been discontinued.

**17. Transactions of the Dead Letter Office.**—Under sections 45 to 53 of the Posts and Telegraph Act 1901, the Postmaster-General may cause to be opened all unclaimed and undelivered postal articles originally posted within the Commonwealth which have been returned from the places to which they were forwarded. Every

unclaimed letter and postal article must be kept for the prescribed period at the office to which it has been transmitted for delivery, and must then be sent to the General Post Office. Letters and packets originally posted elsewhere than in the Commonwealth are returned to the proper authorities in the country in which they were so posted, or, if originally posted in the Commonwealth are returned to the General Post Office in the State where posted; but unclaimed or undelivered newspapers may be forthwith sold, destroyed, or used for any public purpose. Opened postal articles not containing anything of value are returned to the writer or sender if his name and address can be ascertained, but may otherwise be destroyed forthwith. As regards opened letters and packets containing valuable or saleable enclosures, a list and memorandum of the contents are kept, and a notice is sent to the person to whom the letter or packet is addressed if he be known, or otherwise to the writer or sender thereof if he be known. Upon application within three months of the date of such notice the letter or packet may be claimed by the addressee, or, failing him, by the writer or sender. If unclaimed within three months, the letter and contents may be destroyed or sold, and the proceeds paid into the consolidated revenue fund. The following table shews the total number of letters, postcards, and packets dealt with by the Dead Letter Offices in the Commonwealth during the year 1916-17, together with the number of inland, interstate, and international letters either returned to writers, delivered, destroyed, or returned as unclaimed.

The greater part of the Australian Expeditionary Force mails undelivered, is dealt with by Military Dead Letter Offices attached to the Defence headquarters in the different States, and is not included herein.

#### TRANSACTIONS OF DEAD LETTER OFFICES IN THE COMMONWEALTH, 1916-17.

Particulars.	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	C'wlth.
LETTERS (,000 OMITTED).							
Returned to writers, delivered, etc. ...	545	390	267	129	216	78	1,625
Destroyed in accordance with Act ...	131	78	37	16	26	13	301
Returned to other States or Countries as unclaimed ...	123	56	45	23	34	15	296
Total ...	799	524	349	168	276	106	2,222
POSTCARDS (,000 OMITTED).							
Returned to writers, delivered, etc. ...	1	2	6	8	26	2	45
Destroyed in accordance with Act ...	1	2	1	...	2	...	6
Returned to other States or Countries as unclaimed ...	4	4	2	1	2	1	14
Total ...	6	8	9	9	30	3	65
PACKETS (,000 OMITTED).							
Returned to writers, delivered, etc. ...	434	36	112	21	155	3	761
Destroyed in accordance with Act ...	110	225	10	23	...	...	368
Returned to other States or Countries as unclaimed ...	2	8	34	15	13	9	81
Total ...	546	269	156	59	168	12	1,210
Grand total (letters, postcards, & packets)	1,351	801	514	236	474	121	3,497

18. **Post Offices and Receiving Offices and Employees.**—The following tables shew the numbers of post and receiving offices and the corresponding numbers of employees in each State and in the Commonwealth at the end of the year 1901, and from 1912 to 1916-17 inclusive :—

## NUMBER OF POST AND RECEIVING OFFICES, 1901 and 1912-17.

State.	1901.		1912.		1913.		1914.		1915-16.		1916-17.	
	Post Offices.	Receiving Offices.	Post Offices.	Receiving Offices.	Post Offices.	Receiving Offices.	Post Offices.	Receiving Offices.	Post Offices.	Receiving Offices.	Post Offices.	Receiving Offices.
New South Wales ...	1,684	524	2,000	559	2,025	571	2,049	574	2,074	566	2,040	548
Victoria ...	1,637	18	1,730	844	1,749	883	1,815	871	1,787	873	1,782	856
Queensland* ...	411	823	593	770	614	772	629	728	643	680	643	685
South Australia ...	699	...	668	95	672	124	680	131	739	105	705	125
Western Australia ...	187	28	300	130	398	146	418	158	431	182	412	206
Tasmania† ...	376	...	391	55	395	60	400	63	409	69	398	83
Commonwealth ...	4,994	1,393	5,772	2,453	5,853	2,556	5,991	2,525	6,082	2,483	5,960	2,503

\* For the year 1901 the number of receiving offices is included in post offices in the official returns, and separate figures here given are estimated. † The return for 1901 includes both post offices and receiving offices.

## NUMBER OF EMPLOYEES AND NUMBER OF MAIL CONTRACTORS.

1901 AND 1912-17.

State.	1901.		1912.		1913.		1914.		1915-16.		1916-17.	
	Employees.	Mail Contractors.	Employees.	Mail Contractors.	Employees.	Mail Contractors.	Employees.	Mail Contractors.	Employees.	Mail Contractors.	Employees.	Mail Contractors.
New South Wales ...	5,636	984	12,614	1,798	10,823	2,376	11,131	2,512	13,166	1,899	12,902	1,915
Victoria ...	3,962	890	7,845	1,060	8,437	1,123	8,614	1,132	8,840	1,152	8,826	1,137
Queensland ...	2,616	...	3,942	768	4,134	812	4,343	813	4,051	806	4,442	801
South Australia ...	1,945	...	2,173	364	2,364	382	2,432	307	2,316	348	2,942	352
Western Australia ...	1,303	140	2,246	251	2,444	355	2,327	351	2,558	284	2,693	279
Tasmania ...	865	...	1,094	217	1,141	294	1,176	281	1,275	224	1,313	221
Commonwealth ...	16,327	2,014	29,914	4,458	29,343	5,342	30,023	5,396	32,706	4,713	33,118	4,705

The figures in the above table are exclusive of casual and exempt officers employed intermittently.

19. Gross Revenue of Postal Department.—The following table shews the gross revenue of the Postal Department for the years ended 30th June, 1902 and 1912 to 1917 inclusive, under three heads, viz., the Postal, the Telegraph, and the Telephone branches. In the Postal branch is included the revenue derived from money-order commissions, poundage on postal notes, private boxes and bags, and miscellaneous sources. The following figures and also those for expenditure are supplied by the Treasury and represent the actual collections and payments for the periods mentioned:—

## GROSS REVENUE OF POSTAL DEPARTMENT, 1901-2 and 1911-12 to 1916-17.

Year ended 30th June.				Postal Branch.	Telegraph Branch.	Telephone Branch.	Total.
				£	£	£	£
1902	...	...	...	1,743,662	629,199*	†	2,372,861
1912	...	...	...	2,375,390	788,441	752,423	3,916,254
1913	...	...	...	2,553,995	811,592	860,726	4,226,313
1914	...	...	...	2,680,944	834,316	996,047	4,511,307
1915	...	...	...	2,616,887	878,233	1,099,417	4,594,542
1916	...	...	...	2,938,837	893,904	1,220,855	5,053,596
1917	...	...	...	2,991,669	947,178	1,549,918	5,488,765

\* Including telephone revenue. † Included in telegraph revenue.



The following table gives an analysis of the actual collections of the Postal Department in each State and in the Commonwealth during the year ended 30th June, 1917:—

### ANALYSIS OF GROSS REVENUE OF POSTAL DEPARTMENT, 1916-17.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wlth.
	£	£	£	£	£	£	£
Postage ... ..	1,034,609	746,555	361,833	222,976	153,297	94,590	2,613,860
Telegraphs ... ..	340,162	200,728	164,893	128,456	83,449	29,490	947,178
Telephones ... ..	629,259	431,796	218,603	135,355	92,739	42,166	1,549,918
Money order commission ... ..	54,992	28,954	18,073	8,881	11,079	4,918	126,897
Poundage on postal notes ... ..	13,305	5,885	6,906	3,494	2,221	1,345	33,086
Private boxes and bags ... ..	76,853	66,214	24,807	13,017	30,465	6,480	217,836
Miscellaneous ... ..							
<b>Total ... ..</b>	<b>2,149,180</b>	<b>1,480,132</b>	<b>795,105</b>	<b>512,109</b>	<b>373,250</b>	<b>178,989</b>	<b>5,488,765</b>

**20. Expenditure in respect of the Postal Department.**—The subjoined table shews the total expenditure in respect of the Postal Department in the Commonwealth for each of the years ended 30th June, 1902 and 1912 to 1917 inclusive. The figures given include certain items of expenditure, such as rent, repairs and maintenance of buildings, fittings and furniture, sanitation, water supply, new buildings and additions which are under the control of the Department of Home Affairs, and interest on transferred properties.

### TOTAL EXPENDITURE IN RESPECT OF POSTAL DEPARTMENT, 1901-2 AND 1911-12 TO 1916-17.

Year.	1901-2.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
Expenditure ... .. £	2,478,796	5,344,421	6,435,039	6,597,123	6,315,744	6,366,431	5,883,570

The following table shews, as far as possible, the distribution of expenditure on various items in each State during the year ended 30th June, 1917. The table is not to be regarded as a statement of the working expenses of the Department, since items relating to new works, interest, etc., are included therein.

### DISTRIBUTION OF EXPENDITURE OF POSTAL DEPARTMENT, 1916-17.

Particulars.	Central Office.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wlth.
	£	£	£	£	£	£	£	£
<b>Salaries and Contingencies—</b>								
Salaries ... ..	19,369	1,052,573	666,908	334,934	223,258	221,693	80,021	2,598,756
Conveyance of mails ... ..	...	372,730	160,848	197,421	89,760	73,865	42,938	836,563
Contingencies ... ..	2,802	491,050	318,639	195,816	127,557	119,072	53,545	1,298,781
Cables ... ..	3,929	...	...	...	...	...	...	3,929
Ocean mails ... ..	26,221	...	...	...	...	...	...	26,221
Miscellaneous ... ..	713	5,354	4,859	1,519	1,689	1,241	251	15,626
<b>Pensions and retiring allowances ... ..</b>	<b>...</b>	<b>22,524</b>	<b>27,315</b>	<b>1,713</b>	<b>...</b>	<b>4,325</b>	<b>...</b>	<b>55,877</b>
Rent, repairs, maintenance ... ..	213	33,480	14,768	8,107	3,633	5,800	1,599	67,600
Supervision of works ... ..	...	1,168	879	420	274	194	125	3,060
Proport'n of Audit Office exps. ... ..	...	1,128	849	406	265	187	121	2,956
Unforeseen expenditure ... ..	...	138	104	50	32	23	15	363
<b>New Works—</b>								
Telegraph and telephone ... ..	...	199,976	76,117	59,193	69,410	40,170	14,956	459,822
New buildings, etc. ... ..	...	22,117	56,298	230	2,367	33,793	30	114,824
Interest on transferred properties ... ..	...	81,748	46,713	32,333	29,333	19,972	7,503	217,602
Purchase of sites ... ..	...	...	...	...	...	...	...	16,607
Other ... ..	...	...	...	...	...	...	...	64,985
<b>Total ... ..</b>	<b>53,247</b>	<b>2,273,986</b>	<b>1,374,297</b>	<b>832,142</b>	<b>547,878</b>	<b>519,324</b>	<b>201,104</b>	<b>5,883,570</b>

\* Particulars of apportionment to each State not available.

**21. Balance Sheet of the Postmaster-General's Department.**—The first complete balance sheet and profit and loss account of the Postmaster-General's Department was presented in November, 1913, for the year ending 30th June, 1913. The balance sheet for the year 1916-17 as shewn hereunder discloses the fact that the working of the Postmaster-General's Department for that year resulted in a surplus of £381,236, after providing for depreciation, pension and retiring allowances. From this amount must be deducted £558,382 for interest on capital, making a total deficit of £177,146.

Tables shewing the results of the working of the Department for the years 1913-14, to 1916-17 are appended :—

**GENERAL PROFIT AND LOSS ACCOUNT, POSTMASTER-GENERAL'S DEPARTMENT,  
1913-14 to 1916-17.**

Items.	1913-14.	1914-15.	1915-16.*	1916-17.*
Total earnings ...	£ 4,523,368	£ 4,620,061	£ 5,049,569	£ 5,515,769
Total working expenses	4,589,601	4,761,714	4,841,667	5,134,533
Deficit ...	66,233	141,653	*207,902	*381,236
Interest on capital ...	435,223	488,069	523,892	558,382
Total deficit ...	501,456	629,722	315,990	177,146

\* Profit. † Excluding Wireless Telegraphy Branch, which was transferred to the Department of the Navy as from 1st July, 1915.

It will be seen from the above that, despite the increasing revenue of the Department, the total deficit in 1914-15 was £629,722. The net result for 1915-16, however, shewed a marked improvement on the figures for the previous year, while in 1916-17 there was a further large decrease in the deficit, this being the best year since the issue of balance-sheets. In the annual report for the year 1913-14, the increased deficit of that year over 1912-13 was stated by the Department to be "due to several factors, chief amongst which are higher rates of salaries and wages resulting from statutory increments, and large increases under arbitration awards affecting postal electricians and linesmen, increased cost of contracts for the conveyance of inland mails, and increased prices for stores, fodder, horse-hire, printing, and increased debits for interest on additional capital expenditure." Effects of the drought and the war upon earnings, combined with increased charges to working expenses under the heading of depreciation (on account of assets dismantled during the year), are regarded by the Department as responsible for the deficit of £629,722 on the working for 1914-15. Increases of salaries under arbitration awards, increased amounts payable for mail contracts, and greatly enhanced prices for various items of stores, are responsible for the excess of working expenses in 1915-16 and 1916-17.

The following tables show the yearly results of the working of the various branches, and the Department as a whole, and in each State from 1913-14 to 1916-17 :—

**PROFIT OR LOSS OF THE VARIOUS BRANCHES OF THE POSTAL DEPARTMENT,  
1914-15 to 1916-17.**

Branch.	1914-15.	1915-16.		1916-17.	
	Loss.	Loss.	Profit.	Loss.	Profit.
	£	£	£	£	£
Postal ...	81,296	...	42,131	168,896	...
Telegraph ...	114,555	86,426	...	25,484	...
Telephone ...	390,704	271,695	...	...	17,234
Wireless Telegraph ...	43,167	*	*	*	*
	629,722	358,121	42,131	194,380	17,234

\* Wireless telegraphy transferred to Navy Department.

The Telephone branch shewed a profit for the first time on record in 1916-17. The loss in the same period on the working of the Postal branch is largely accounted for by the payment of £68,107 for the carriage of oversea mails in previous years, and an increased payment of £56,218 to the Railway Departments in 1916-17.

**PROFIT OR LOSS OF THE POSTAL DEPARTMENT IN THE VARIOUS STATES,  
1914-15 to 1916-17.**

State.	1914-15.	1915-16.		1916-17.	
	Loss.	Loss.	Profit.	Loss.	Profit.
	£	£	£	£	£
New South Wales ...	238,612	170,800	...	102,434	...
Victoria ...	32,555	...	59,412	...	86,330
Queensland ...	97,480	68,594	...	33,037	...
South Australia ...	7,226	...	34,446	...	31,969
Western Australia ...	224,065	154,874	...	146,909	...
Tasmania ...	29,784	15,580	...	13,065	...
	629,722	409,848	93,858	295,445	118,299

**22. Royal Commission on Postal Services.**—In 1908 a Royal Commission was appointed to report on the Postal, Telegraphic, and Telephonic Services of the Commonwealth. An account of the work done by the Commission will be found in earlier issues of the Year Book. (See Year Book No. 6, p. 766.)

## § 2. Telegraphs.

**1. First Lines Constructed.**—The electric telegraph was first introduced into Australia for use by the public in the year 1854, when a line from Melbourne to Williamstown was opened. The first line in South Australia, from Adelaide to Port Adelaide, was opened in 1856, while the first line in New South Wales was brought into operation in 1858, when the line from Sydney to Liverpool, twenty-two miles in length, was opened. In Tasmania the first telegraphic line was completed in 1857, while in the following year communication was established between Sydney, Melbourne, and Adelaide. The first lines to be constructed in Queensland were those between Brisbane and Warwick, and Brisbane and Lytton, distances of 169 and 12 miles respectively. These lines were working in 1861. In Western Australia the first telegraph constructed was from Perth to Fremantle, a distance of twelve miles, which was brought into use in 1869, and in the same year the cable joining Tasmania with the continent of Australia was completed.

**2. Development of Services.**—During the period from 1871 to 1881 great progress was made throughout Australia in the way of telegraphic construction, over 14,000 miles of line, exclusive of railway telegraph lines, being opened for use, making the total length of the line open at the end of the year 1881, 25,470 miles. At the present time the systems of telegraph lines throughout Australia are well developed. The longest line extends from Thursday Island, in Torres Strait, by submarine cable to Paterson, on the mainland of Cape York Peninsula; from Paterson the line runs in a southerly direction as far as Brisbane, where it joins the main interstate line to Sydney, Melbourne, and Adelaide; from Adelaide it runs to Port Augusta, then on to Port Lincoln, on Eyre's Peninsula, and thence to Eucla, on the Western Australia boundary; from Eucla the line extends along the coast of the Great Australian Bight to Albany, and thence it runs adjacent to the west coast of Western

Australia as far as Onslow, via Perth, Geraldton, and Carnarvon. From Onslow connection extends to Broome, in Roebuck Bay. From Roebuck Bay the line crosses the Kimberley district in an easterly direction, and then runs north as far as the terminus at Wyndham. In Queensland a line runs to Burketown, near the coast of the Gulf of Carpentaria, via Normanton; another line extends to Cloncurry and Urandangi, in the extreme west of the State. Branch lines extend to all important coastal and inland towns, while considerable networks of lines converge from the country districts towards the centres of population. From Adelaide the transcontinental line runs in a northerly direction to Darwin, from which place communication is provided with Europe by submarine cable by way of Batavia, Singapore, and Madras. In Western Australia a line runs from Eucla to the Coolgardie goldfields via Balladonia and Dundas, and from Coolgardie communication is provided with Perth and with Sir Samuel, in the East Murchison district.

3. Number of Telegraph Offices and Length of Lines and Wire Open.—The following table shews the number of telegraph offices and the length of telegraphic lines and of telegraph wire available for use in the Commonwealth from 1914 to 1917 inclusive. It will be noticed that 73,663 miles of wire are available for both telegraph and telephone purposes:—

NUMBER OF TELEGRAPH OFFICES AND LENGTH OF LINE AVAILABLE  
FOR USE, 1914 to 1917.

Particulars.	1914.	1915.	1916.	1917.
Number of Offices ... ..	5,160	5,512	6,119	6,189
Length of Wire—	miles.	miles.	miles.	miles.
Telegraph purposes only ... ..	70,992	71,680	62,224	62,804
Telegraph and telephone purposes ... ..	52,288	60,061	71,267	73,663
Length of Line—				
Conductors in Morse Cable ... ..	2,834	2,883	2,959	3,232
Conductors in Submarine Cable ... ..	910	1,080	1,196	1,680
Pole routes ... ..	55,362	57,424	58,889	59,706

The following table gives corresponding particulars for each State for the year 1916-17:—

NUMBER OF TELEGRAPH OFFICES, LENGTH OF LINE AND WIRE, IN  
EACH STATE, 1916-17.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wlth.
No. of Offices ... ..	2,231	1,711	795	516	503	433	6,189
Length of Wire (miles)—							
Telegraph purposes only ... ..	21,470	5,187	15,282	11,889	8,840	136	62,804
Telegraph and Telephone purposes ... ..	28,408	16,230	11,987	5,235	6,816	4,937	73,663
Length of Line (miles)—							
Conductors in Morse Cable ... ..	675	2,107	416	...	21	13	3,232
Conductors in Submarine Cable ... ..	1,074	437	66	54	...	49	1,680
Pole routes ... ..	22,902	7,067	12,358	6,551	8,343	2,485	59,706

4. **Revenue and Expenditure.**—Particulars as to the revenue from the telegraph systems for the years 1902 and 1912-17 are given on page 744.

5. **Number of Telegrams Despatched.**—The following table shows the total number of telegrams despatched to destinations within the Commonwealth in 1901 and in each of the years 1911 to 1916-17 inclusive:—

**NUMBER OF TELEGRAMS DESPATCHED (,000 OMITTED), 1901 and 1911-17.**

Year ... ..	1901.	1911.	1912.	1913.	1914.	1915-16.	1916-17.
Number* ... ..	8,003	12,821	13,343	13,556	13,918	13,939	14,089

\* Including interstate cablegrams.

The following table shows the number of telegrams despatched in each State in 1916-17 for delivery in that State, and the number despatched in each State for delivery in other States, and also the total number of telegrams—exclusive of cablegrams for places outside the Commonwealth—despatched in each State:—

**NUMBER OF TELEGRAMS DESPATCHED IN EACH STATE, 1916-17 (,000 OMITTED).**

State, etc. ... ..	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
Inland (counted once)	3,864	2,258	1,894	846	1,248	371	10,481
Interstate* ... ..	1,089	1,038	532	410	364	175	3,608
Total ... ..	4,953	3,296	2,426	1,256	1,612	546	14,089

\* Including interstate cablegrams.

6. **Rates for Transmission of Telegrams.**—The present rates for the transmission of telegrams within the Commonwealth were fixed by section 7 of the Post and Telegraph Rates Act 1902, and came into force on the 1st November, 1902. Under this Act charges are made for telegrams according to whether they are "ordinary" or "press" telegrams. "Press" telegrams are defined to mean those the text of which consists of political, commercial, etc., information, and of news intended for publication in a newspaper. The telegram must be sent by an authorised correspondent, and must be addressed to a registered newspaper or recognised news agency. The subjoined tables shew the scales of charges:—

**SCALE OF CHARGES FOR ORDINARY TELEGRAMS.**

Particulars.	Town and Suburban, within Prescribed Limits, or within 15 Miles from the Sending Station.	Other Places within the State, except Town and Suburban.	Interstate.
	s. d.	s. d.	s. d.
Including address and signature—			
Not exceeding 16 words ... ..	0 6	0 9	1 0
Each additional word ... ..	0 1	0 1	0 1

Double the foregoing rates are imposed for the transmission of telegrams on Sunday, Christmas Day, and Good Friday, and between the hours of 8 p.m. and 9 a.m., and for telegrams sent on "urgent" forms.

### SCALE OF CHARGES FOR PRESS TELEGRAMS.

Particulars.	Within any State.	Interstate.	Relating to Parlia- mentary, Executive, Departmental, and other Common- wealth Proceedings as may be prescribed.*
	s. d.	s. d.	s. d.
Not exceeding 25 words ... ..	0 6	1 0	1 0
From 26 to 50 words ... ..	0 9	1 6	} 1 6
From 51 to 100 words ... ..	1 6	3 0	
Every additional 50 words ... ..	0 6	1 0	0 6

\* Within the Commonwealth.

7. **Letter-telegrams.**—Commencing in February, 1914, the Postal Department instituted a system of letter-telegrams between all telegraph offices which are open between 7 p.m. and midnight. The letter-telegrams are forwarded during the night by telegraph to the office of destination and are delivered as ordinary letters by the first letter delivery, or are despatched by mail to the address in the ordinary way. The rates charged throughout the Commonwealth are one shilling for the first 40 words, and one half-penny for each additional word, double these rates being charged on Sundays. At the end of 1917 the service applied to 109 offices throughout the Commonwealth.

8. **Wireless Telegraphy.**—The information dealing with wireless telegraphy, which appeared in previous issues of the Year Book, has, for the present, been discontinued.

## § 3. Submarine Cables.

1. **First Cable Communication with the Old World.**—In earlier issues of the Year Book (No. 6, p. 770) will be found a detailed account of the connection of Australia with the old world by means of submarine cables.

2. **The Tasmania - Victoria Cables.**—A submarine cable joining Tasmania to the continent of Australia was opened for use in 1869, the total length being 170 miles. The line was owned by the Eastern Extension Telegraph Company, and was subsidised by the Tasmanian Government until the year 1909. On the 28th February, 1908, the Postmaster-General entered into an agreement with Messrs. Siemens Brothers and Company Ltd., of London, for the manufacture and laying of two submarine cables between Tasmania and Victoria. The new cables were taken over on the 24th March, 1909, and opened to the public on the 1st May, 1909, the day following the expiration of the agreement with the Eastern Extension Company. Their aggregate length is approximately 350 nautical miles of main cable, and 20 nautical miles each of intermediate and shore-end cable, making a total of 390 nautical miles. The contract price was £52,447.

**3. The Eastern Extension Company's Cables.**—In addition to the first Victoria-Tasmania cable and the original cable from Darwin (see Year Book No. 6, p. 770), the Eastern Extension Company has constructed several other cables connecting with various places in the Commonwealth. (a) In 1879 the original cable *via* Banjoewangie was duplicated, the States of New South Wales, Victoria, South Australia, Western Australia and Tasmania having agreed to pay the above company a subsidy of £32,400 per annum for a period of twenty years, the amount to be divided between the States on a population basis. (b) In 1881 a cable was constructed connecting Broome, in Roebuck Bay, W.A., with Banjoewangie, and remained in operation until 1914, in which year it was taken up. (c) In July, 1899, the company offered to lay a cable direct to Great Britain *via* the Cape of Good Hope, and also offered reductions in the rates charged, if the States would agree to certain conditions giving the company the right of direct dealing with the public. The States of South Australia, Western Australia, and Tasmania accepted the terms offered, and New South Wales entered into the agreement in January, 1901. The cable was opened *via* Fremantle and Durban in October, 1901. (d) Another submarine cable from Fremantle to Adelaide forms an alternative line of communication between the eastern States and Western Australia. (e) There is an alternative route, partly belonging to the Eastern Extension Company and connecting the Port Darwin-Singapore cable with London, *via* Hong Kong, Shanghai, Possiet Bay (Pacific Russia), Libau (Russian Baltic), and Newbiggin (England). (f) In 1909 a cable was laid from Java to Cocos Island, thus affording another route from Australia to South Africa, whilst in April, 1911, a radio-telegraphic station was opened at Cocos Island, thus strengthening the line of communication between Australia and the East.

**4. The Pacific Cable.**—In July, 1898, a conference of representatives of Great Britain, Canada, New South Wales, Victoria, Queensland, South Australia, and New Zealand was held for the purpose of considering a project for a cable to be laid across the Pacific Ocean, touching only British territory on its way from Australia to Canada, thus providing an "All Red" route, as it is termed, for a cable system between England and Australia. In the following year it was agreed at a meeting held by representatives of the countries interested that the cable should be laid and that Great Britain and Canada should each pay five-eightieths of the cost, and the States of New South Wales, Victoria, Queensland, and the Dominion of New Zealand should each pay one-ninth. The construction and management of the cable were placed under the control of a board composed of seven members—two each from Great Britain, Canada, and Australia, and one from New Zealand—called the Pacific Cable Board. The Australian shore-end of the cable was landed at Southport, Queensland, in March, 1902, and the cable was completed on the 31st October, 1902, and opened for traffic on the 7th December of the same year. There are cable stations at Norfolk Island, Fiji, and Fanning Island, and a branch cable runs from Norfolk Island to New Zealand. In 1910 the Board leased a wire from Bamfield, British Columbia, to Montreal, thus extending the Pacific cable system from Queensland to Montreal. The traffic is then carried across the Atlantic to the United Kingdom by the cables of the Anglo-American and Commercial Companies. The receipts for the year ended 31st March, 1917, after providing for working expenses, interest, sinking fund, etc., shewed a surplus of £4231, of which the Commonwealth's share is £1410. The financial year 1916 resulted in a surplus of £17,924, but to enable an equitable comparison to be made, it is necessary to explain that in addition to the usual annual contribution to the renewal fund in 1917, a further sum of £60,000 was transferred to replace loss by depreciation of securities in which the fund is invested and to strengthen the position generally. As in 1916, the surplus must be applied in reduction of the outstanding balance of the original loan of £2,000,000 in accordance with the Pacific Cable Act of 1901. The following table shews particulars of the revenue, expenditure, total profit or loss, and the proportion of the loss payable by the Commonwealth for the financial years 1903 and 1910-17:—

**REVENUE, EXPENDITURE, AND PROFIT AND LOSS ON WORKING OF PACIFIC CABLE, 1903 and 1910-17.**

Year ended the 31st March.	Revenue.	Expenditure (including Annuities and Renewal Fund).	Profit or Loss.	Commonwealth Proportion of Loss, or Profit.
	£	£	£	£
1903 ...	...	...	Loss 90,518	Loss 30,514
1910 ...	111,724	171,312	„ 59,588	„ 19,862
1911 ...	138,678	186,888	„ 48,210	„ 16,071
1912 ...	159,150	199,649	„ 40,499	„ 13,500
1913 ...	167,901	200,171	„ 32,270	„ 10,757
1914 ...	197,848	217,798	„ 19,950	„ 6,650
1915 ...	225,045	232,961	„ 7,916	„ 2,638
1916 ...	310,516	292,592	Profit 17,924	Profit 5,975
1917 ...	336,774	332,543	„ 4,231	„ 1,410

\* To 30th June in each year.

**5. New Zealand Cables.**—A submarine cable joining New Zealand to the Australian Continent was laid in 1876. The line is 1191 miles in length. The Australian shore-end of the cable is at Botany Bay, while the New Zealand terminus is at Wakapuaka, near Nelson, in the Middle Island, from which place another cable, 109 miles in length, is laid to Wanganui, in the North Island. For a period of ten years after its opening the cable was subsidised by the New South Wales and New Zealand Governments, the total contributions amounting to £10,000 a year. The branch from Norfolk Island to New Zealand of the Pacific cable was opened on the 23rd April, 1902. The length of this cable is 597 miles, the New Zealand terminus being at Doubtless Bay in the north of the North Island. During 1911 a scheme to lay a second cable between New Zealand and Australia (Auckland to Sydney) was adopted by the various Governments concerned, and the laying of the new cable was completed on the 24th December, 1912, the cable being opened for traffic on the 31st December, 1912.

**6. The New Caledonian Cable.**—In April, 1892, a French company, known as the Compagnie Française des Câbles Télégraphiques, entered into an agreement with the French, the New South Wales, and the Queensland Governments to lay down a submarine cable between New Caledonia and Queensland in return for guarantees by the French Government to the extent of £8000, and by the Governments of New South Wales and Queensland to the amount of £2000 each annually for a period of thirty years. The cable was opened for use in October, 1893, the Australian shore-end being at Bundaberg. The guarantees of the Governments of New South Wales and Queensland have now been transferred to the Commonwealth Government.

**7. Number of Cablegrams Received and Despatched.**—The subjoined table shews the number of cablegrams received and despatched in the Commonwealth from 1914 to 1916-17:—

**CABLEGRAMS RECEIVED AND DESPATCHED, COMMONWEALTH, 1914 to 1916-17.**

Particulars.	Cablegrams Received.			Cablegrams Despatched.			Total Cablegrams Received and Despatched.		
	1914.	1915-16.	1916-17.	1914.	1915-16.	1916-17.	1914.	1915-16.	1916-17.
Number... ..	305,384	437,151	533,055	325,841	387,402	392,381	631,225	824,553	925,436

The following table shews the total number of cablegrams received and despatched in each State during the year 1916-17. The figures given are exclusive of interstate cablegrams, which are classed as interstate telegrams (see § 2 hereof):—



## NUMBER OF CABLEGRAMS RECEIVED AND DESPATCHED IN EACH STATE, 1916-17.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.*	C'wealth.
Number received ...	260,284	160,497	38,989	36,055	24,933	12,297	533,055
„ despatched...	186,143	132,025	24,218	21,002	21,052	7,941	392,381
Total ...	446,427	292,522	63,207	57,057	45,985	20,238	925,436

\* Exclusive of interstate cablegrams, which are included with interstate telegrams (see § 2 ante).

8. **Lengths of Cable Routes.**—The following table gives the lengths of various cable routes:—

## LENGTHS OF CABLE ROUTES.

Via Darwin.				Via South Africa.			
			Miles.				Miles.
Adelaide to Darwin ...	...	...	2,134	Perth to Mauritius ...	...	...	4,417
Darwin to Banjoewangie ...	...	...	1,150	Mauritius to Durban ...	...	...	1,786
Banjoewangie to London ...	...	...	9,841	Durban to Cape Town ...	...	...	800
				Cape Town to Madeira ...	...	...	5,715
				Madeira to Penzance ...	...	...	1,341
				Penzance to London ...	...	...	360
Total ...	...	...	13,125	Total ...	...	...	14,319

Via Vancouver.				Via Russia.			
			Miles.				Miles.
Southport (Queensland) to Norfolk Island ...	...	...	963	Sydney to Darwin ...	...	...	2,992
Norfolk Island to Suva (Fiji) ...	...	...	1,129	Darwin to Hong Kong ...	...	...	4,237
Suva to Fanning Island ...	...	...	2,351	Hong Kong to Possiet Bay ...	...	...	2,647
Fanning Island to Bamfield (Canada) ...	...	...	3,980	Possiet Bay to Libau ...	...	...	6,399
Across Canada ...	...	...	3,450	Libau to Newbiggin (England) ...	...	...	1,657
Canada to Ireland ...	...	...	2,450				
Total ...	...	...	14,323	Total ...	...	...	17,932

9. **Cable Rates.**—In 1872 the cable rate to England was nine guineas for twenty words, but when word rates were brought into general use in 1875, the rate between Great Britain and Australia was fixed at ten shillings and sixpence, subsequently altered to ten shillings and eightpence. In 1886 the Eastern Extension Telegraph Company reduced the rate to nine shillings and fourpence a word for ordinary messages, to seven shillings and a penny for Government messages, and to two shillings and eightpence a word for press messages. At a conference of the postal and telegraphic authorities held in March, 1891, the proposal to reduce the rates to four shillings a word for ordinary messages, three shillings and eightpence for Government, and one shilling and tenpence for press messages was agreed to, the States of New South Wales, Victoria, South Australia, Western Australia, and Tasmania undertaking to make good half the loss which the Eastern Company might suffer through such reductions. The States guaranteed to the company one-half of the amount of receipts short of the sum of £237,736—the amount received by the company in 1889 in respect of cable charges—the other half to be borne by the company. The Government of South Australia was also guaranteed by the other contracting States against any loss to the revenue which the lower cable rates might cause in the working of the overland lines. Queensland subsequently joined the other States in these guarantees. In 1893, however, owing to the heavy losses incurred,

the rates for ordinary messages were increased to four shillings and ninepence per word, and at the same time New Zealand joined the guarantees to the company and to South Australia.

(i.) *Present Rates to Great Britain.* On the acceptance by three of the States of the terms offered by the Eastern Extension Telegraph Company for the construction of a cable *via* South Africa, the rate for ordinary messages was reduced in May, 1900, to four shillings a word. It was further reduced to three shillings and sixpence in January, 1901, and to three shillings in January, 1902, at which amount the standard rate by all routes for cablegrams to Great Britain has since remained. The scale of reductions is governed by a revenue standard, and when the latter averages £330,000 per annum a further reduction to two shillings and sixpence will be made. In September, 1912, the "through" charge for press cables was reduced from ninepence to sevenpence-halfpenny per word.

(ii.) *Deferred Cablegrams.* With a view to affording additional cable facilities and to keeping the Pacific cable fully occupied during the whole twenty-four hours, proposals were made by the Postmaster-General's Department for the adoption of a system of deferred cablegrams. A meeting of representatives of the administrations and companies concerned was held in London in November, 1910, and the new rates came into force on the 1st January, 1912. Under this system a reduction of 50 % in the charges is made, providing the message is written in plain language, and conveys no other meaning than that which appears on the face of it. Messages can only be transmitted after non-urgent private cablegrams and press cablegrams. Those which have not reached their destination within a period of twenty-four hours from the time of handing in are transmitted in turn with cablegrams charged full rate. They may be sent *via* the Pacific or Eastern routes to all countries to which the ordinary rate exceeds tenpence per word. The arrangement, previous to the war, extended to some sixty countries, and became very popular. In 1916-17, 6,055,387 words were transmitted to and from Australia, the Commonwealth revenue from this source amounting to £63,373, an increase over the previous year of 772,916 words and of £8153 revenue. This service, together with that of the week-end cable letters, has to some extent affected the ordinary cable business. Deferred press cablegrams, subject to a delay of 18 hours, may be exchanged between the Commonwealth and the United Kingdom at the rate of 4½d. per word, and between the Commonwealth and Vancouver at the rate of 1½d. per word. Since the commencement of the war, it has been found necessary on several occasions, owing partly to the interruption to the Pacific cable from September to November, 1914, and partly to the pressure of other cable matter, to temporarily suspend the operation of the deferred cablegram service, as well as that of the week-end cable messages.

(iii.) *Week-End Cable Letters.* The service of the week-end cable letters between the Commonwealth and the United Kingdom was introduced on the 4th January, 1913. Under this arrangement, messages written in plain language might be lodged at any post office in the Commonwealth or the United Kingdom in time to reach the forwarding cable office by post or telegraph by midnight on Saturday. The messages, which were deliverable by post on Tuesday morning, were charged at the rate of ninepence per word, plus ordinary telegraph rates if required to be forwarded by land telegraph in either the country of despatch or destination.

The system has since been extended to apply to messages between the Commonwealth and the Union of South Africa, India, Ceylon, Burma, Canada, Portugal, and Newfoundland. A further benefit has been conferred on users, as week-end cables to the countries enumerated may now be transmitted by telegraph throughout without extra charge. The rates to these countries and to the United Kingdom are shewn hereunder :—

## RATES FOR WEEK-END CABLE LETTERS.

Country.	Rate per Word.	Minimum Charge per Telegram.
United Kingdom ...	9d.	15/-
Union of South Africa ...	7d. (plus ½d. for those lodged in Tasmania)	11/8
India, Ceylon, and Burma ...	7½d.	12/6
Canada (ordinary rate 2s. 4d.)	7d.	11/8
Other parts of Canada ...	8d. to 10d.	12/11 to 16/8
Newfoundland ...	8½d.	13/9
Portugal... ..	9d.	15/-

Week-end cable letters may also be sent to the United Kingdom or Canada for transmission by registered post to other countries at an extra charge of 5d. per message. As in the case of deferred cablegrams, the pressure on the cables during the war has, on several occasions, necessitated the temporary suspension of this service.

(iv.) *Rates to New Zealand.* As a result of the completion of the New Zealand branch of the Pacific cable in 1902, the rates charged for cablegrams between Australia and New Zealand, except to and from Tasmania, were uniformly reduced to fourpence-halfpenny per word. Between New Zealand and Tasmania the charge was fixed at fivepence-halfpenny a word, but it has since been reduced to fourpence-halfpenny. The charge for ordinary cablegrams from New Zealand to Great Britain was reduced from the 1st June, 1902, from five shillings and twopence to three shillings and fourpence a word, and has since been further reduced to three shillings a word.

**10. Subsidised Press Cable Service.**—In October, 1909, a Select Committee of the Commonwealth Senate was appointed to report upon the question of the supply, conditions of sale, and distribution, which control the Press Cable Service within and from outside the Commonwealth. A majority report of this Committee was issued in December, 1909, and recommended (a) the completion of an "All Red" cable route *via* Canada, (b) the conditional subsidisation of a press cable association, (c) the utilisation of the High Commissioner's office for the dissemination in Australia of Empire news, and (d) the amendment of the Copyright Act in regard to cables.

In accordance with the recommendations of this Committee the Commonwealth granted a total subsidy of £6000, extending over a period of three years, to the Independent Press Cable Service, on the conditions that at least 6000 cable words were supplied each week, to be sent *via* Pacific, and that any newspaper proprietary in the Commonwealth was permitted to become a subscriber at rates approved by the Government. This terminated on the 1st July, 1912, and a new arrangement was entered into under which the Commonwealth agrees to grant a subsidy of £2000 per annum, providing that not less than 26,000 words are sent each month. This agreement has been extended for a period of three years from 1st October, 1916, with an annual grant of £1500.

**11. Cable Subsidies paid.**—The agreement between the State Governments and the Eastern Extension Telegraph Company expired on the 30th April, 1900. From the year 1895 onwards the amounts guaranteed—£237,736 to the company and £37,552 to South Australia—were met by the receipts.

The following table shews the total amounts paid by way of cable subsidies for the years 1910-11 to 1916-17 :—

## TOTAL AMOUNT OF CABLE SUBSIDIES PAID, 1910-11 to 1916-17.

Year.	1910-11.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
Amount ... £	20,093	17,522	14,779	10,650	6,638	4,860	3,929

The total amount of cable subsidies paid prior to the year 1908-9 included the subsidy paid in respect of the Tasmania-Victoria cable service.

As the agreement in connection with the Tasmanian cable expired in 1909, and as new cables were laid by the Commonwealth Government, the guarantees were, in the course of the year 1910, reduced to those in connection with the New Caledonia and Pacific cables. The amount of cable subsidies paid by the Commonwealth in 1916-17 was £3929 in respect of the New Caledonian cable guarantee.

## § 4. Telephones.

**1. Development of Telephone Services.**—The Postal Department has established telephone services in all the capital towns and in many of the important centres of population throughout the Commonwealth. Particulars as to the revenue from telephone services in each State for the years 1902 and 1912-17 are given on page 744 *ante*.

**2. Telephone Rates.**—On the 10th December, 1915, revised charges for telephone services came into operation. Under the new scale, ground-rent for telephones is calculated on the number of subscribers connected with the exchange or network, instead of being based on the total population residing within the telephone network, as formerly. The smallest and greatest rental charges remain the same as under the old system, but between these a more gradual scale was introduced. Previously the charge for calls made by a subscriber was at the rate of two calls for one penny up to 2000 calls per half-year; above that number, three calls for one penny. This charge was increased to one penny per call, without any progressive reduction. At the same time, the public telephone charge per call was increased from one penny to twopence. The charges mentioned in the table hereunder are payable for the different classes of telephone services specified therein:—

### TELEPHONES.—RENTAL CHARGES, 30th JUNE, 1917.

Exchanges or Networks with Subscribers' Lines Connected, as shewn hereunder.	Radius of Network with Main Exchange as Centre.	Annual Ground Rent, within Two-mile Radius.		
		For an Exclusive Service.	For each Subscriber or Instrument on a Two-party Service.	For each Subscriber or Instrument on a Three or more party Service.
	Miles.	£ s. d.	£ s. d.	£ s. d.
From 1 to 300 ...	5	3 0 0	2 10 0	2 0 0
„ 301 to 600 ...	5	3 5 0	2 10 0	2 0 0
„ 601 to 1,500 ...	5	3 10 0	2 15 0	2 5 0
„ 1,501 to 4,000 ...	10	3 15 0	3 0 0	2 10 0
„ 4,001 and upwards ...	10	4 0 0	3 0 0	2 10 0

It is provided that for each effective call originating from a subscriber's instrument, the charge shall be one penny.

**3. Particulars of Telephone Services.**—On 30th June, 1917, there were in the Commonwealth 137,652 telephone lines connected to 2044 exchanges, as compared with 128,862 lines connected to 1882 exchanges a year previously. The following tables shew the mileage of lines, etc., for telephone purposes, shewing trunk lines separately, on 30th June, 1916 and 1917:—

**MILEAGE OF LINES, Etc., FOR TELEPHONE PURPOSES (EXCLUSIVE OF TRUNK LINES), 1916 and 1917.**

Particulars.	1916.	1917
Conduits ... duct miles	2,101	2,297
Conductors in Aerial Cables ... loop mileage	39,299	40,306
Underground Cables ... "	178,161	194,029
Cables for Junction Circuits ... "	22,081	23,673
Open Conductors ... single wire mileage	168,440	169,383

**MILEAGE OF WIRES, TELEPHONE TRUNK LINES, 1916 and 1917.**

Particulars.	1916.	1917.
	Miles.	Miles.
Telephone Trunk Lines only ...	23,226	27,055
Telegraph and Telephone purposes ...	71,267	73,663

Particulars relating to the telephone service in each State will be found in the following table :—

**PARTICULARS OF TELEPHONE SERVICE, 1905, 1916 and 1917.**

Particulars.	Year.	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	Total C'with.
No. of Exchanges ...	1905	64	23	19	11	16	16	149
	1916	705	586	248	143	105	95	1,882
	1917	765	622	256	189	111	101	2,044
No. of Lines Connected ...	1905	14,338	9,269	3,864	2,335	*3,462	1,523	*34,791
	1916	51,905	36,372	17,742	10,184	8,530	4,129	128,862
	1917	57,553	38,025	18,562	10,743	8,470	4,300	137,652
No. of Instruments Connected ...	1905	18,616	14,299	4,235	3,246	*4,857	1,751	*47,004
	1916	69,010	48,812	21,430	13,404	10,852	4,908	168,416
	1917	72,884	51,820	22,616	14,521	10,760	5,136	177,737
No. of Subscribers' Instruments ...	1916	66,532	46,497	20,312	12,846	10,235	4,421	160,843
	1917	70,058	49,358	21,474	13,916	10,135	5,000	169,941
No. of Public Telephones ...	1916	1,317	1,169	736	457	325	459	4,463
	1917	1,421	1,278	748	402	328	106	4,283
No. of other Local Instruments ...	1916	1,161	1,146	382	101	292	28	3,110
	1917	1,405	1,184	394	203	297	30	3,513
Instruments per 100 of Population ...	1905	1.3	1.2	.8	.9	1.9	.9	1.2
	1916	3.7	3.5	3.1	3.1	3.4	2.4	3.4
	1917	3.9	3.7	3.3	3.4	3.5	2.6	3.6
Earnings ...	1916	£ 508,594	£ 355,484	£ 180,577	£ 112,103	£ 79,117	£ 37,612	£ 1,273,487
	1917	648,850	447,120	231,180	137,579	94,219	44,159	1,603,107
Working Expenses ...	1916	533,411	319,575	150,379	84,173	110,721	39,028	1,237,287
	1917	538,832	317,026	166,525	84,436	101,020	38,987	1,246,826
Percentage of Working Expenses to Earnings ...	1916	% 104.88	% 89.90	% 83.28	% 75.09	% 139.95	% 103.77	% 97.16
	1917	83.04	70.90	72.03	61.37	107.22	88.29	77.78

Note.—For 1905 the figures are shewn as on 31st December, and for the subsequent years on 30th June (the close of the financial year).

\* Approximate.

## SECTION XIX.

## COMMONWEALTH FINANCE.

## § 1. General.

**1. Financial Provisions of the Constitution.**—The main provisions of the Constitution relating to the initiation and development of the financial system of the Commonwealth are those contained in Chapter IV., "Finance and Trade," being sections 81 to 105 of the Constitution Act. Two other sections which have a most important bearing on questions of Commonwealth finance are sections 69 and 51. For subsequent modification of, and addition to, the original clauses, the enquirer is referred to sub-sections 5 and 6 hereunder.

**2. Departments Transferred or Transferable under Constitution.**—In section 69 it is provided that the Departments of Customs and Excise in each State should become transferred to the Commonwealth on its establishment, and that on a date or dates to be proclaimed by the Governor-General after the establishment of the Commonwealth the following departments should become transferred:—

- (i.) Posts, telegraphs, and telephones.
- (ii.) Naval and military defence.
- (iii.) Lighthouses, lightships, beacons and buoys.
- (iv.) Quarantine.

Under proclamation dated 12th February, 1901, and published in the Commonwealth *Gazette* of the 14th of that month, the Departments of Posts, Telegraphs, and Telephones in each State became transferred to the Commonwealth as from the 1st March, 1901, while under a similar proclamation dated 19th February, 1901, and gazetted on the 20th, the Departments of Naval and Military Defence in each State also became transferred to the Commonwealth as from 1st March, 1901. In the case of Quarantine, an Act (No. 3 of 1908) has been passed and control was assumed by the Commonwealth on 1st July, 1909.

The requisite proclamation of transfer in the case of departments dealing with "Lighthouses, lightships, beacons, and buoys," was made so as to effect the transfer on 1st July, 1915, although legislation relative thereto was passed by the Federal Parliament very much earlier (Act No. 14, 1911).

**3. Departments Transferable by Means of Commonwealth Legislation.**—In addition to the departments here mentioned which pass to the Commonwealth either automatically or by proclamation, there are several others whose duties the Commonwealth is empowered to undertake after the passing by the Commonwealth of the legislation

necessary to authorise the assumption of such duties. These are referred to in section 51 of the Constitution, which contains a statement of all matters respecting which power is (subject to the Constitution) conferred on Parliament "to make laws for the peace, order and good government of the Commonwealth." The matters contained in this section include those already mentioned as being covered by section 69. The principal matters involving for the due performance of the duties connected therewith the creation or transfer of departments of the Public Service are:—

- (i.) Trade and commerce.
- (ii.) Taxation.
- (iii.) Bounties on production or export of goods.
- (iv.) Postal, telegraphic, telephonic, and other like services.
- (v.) Naval and military defence.
- (vi.) Lighthouses, lightships, beacons, and buoys.
- (vii.) Astronomical and meteorological observations.
- (viii.) Quarantine.
- (ix.) Census and statistics.
- (x.) Bankruptcy and insolvency.
- (xi.) Copyrights, patents, and trade marks.
- (xii.) Naturalisation and aliens.
- (xiii.) Marriage.
- (xiv.) Divorce and matrimonial causes.
- (xv.) Invalid and old-age pensions.
- (xvi.) Immigration and emigration.
- (xvii.) Conciliation and arbitration.

**4. Commonwealth Departments.**—As a result of legislation passed from time to time in accordance with section 51, various departments and sub-departments have been transferred from the States to the Commonwealth, whilst other departments necessary for the due performance of the Commonwealth functions have been brought into existence. In the former class are such departments as those of Patents, Trade Marks, Copyrights, Designs, Naturalisation and Meteorology, while in the latter are the Ministerial Departments of Treasury, Trade and Customs, Defence, Attorney-General, Postmaster-General, Home and Territories, and Works and Railways, as well as such general departments as Public Service Commissioner's Office, Treasury, Audit Department, Crown Law Department, Bureau of Census and Statistics, Federal Taxation Office, Prime Minister's Office, and Interstate Commission. It may, therefore, be said that, so far as its financial aspect is concerned, the effect of Federation up to the present time has been the transfer from States to Commonwealth of the revenue obtainable from the great revenue-producing Departments of Customs and Excise, and of the expenditure connected with various departments, whose number is gradually increasing, and that, in addition, the various increasing functions of the Commonwealth have necessitated further new expenditure.

**5. Financial Relations between Commonwealth and States.**—For the first ten years after Federation the financial relations between the Commonwealth and State Governments were regulated by section 87 of the Constitution, known generally as the "Braddon Clause." This provided that the Commonwealth should, until 31st December, 1910—and thereafter so long as Parliament should decide—retain for its own use an amount not exceeding one-fourth of the net revenue from Customs and Excise duties, the balance being returned to the States. The framers of the Constitution only contemplated a moderate Federal expenditure, and doubtless considered that one-fourth of the Customs and Excise revenue would be sufficient, as, indeed, it was in the earlier years. It began to be realised, however, later on, that if the Commonwealth was to undertake large national duties such as Defence, a greatly increased expenditure must be faced. Consequently, on the expiry of the "Braddon Clause" in 1910, it was replaced by an agreement much more favourable to the Commonwealth. This agreement, known as the "Commonwealth Surplus Revenue Act 1910," was passed by the Fisher Administration for a period of ten years, after which time it would be subject to revision. It provided that the Commonwealth was to retain the whole of the Customs and Excise revenue, and to make to the Government of each State (by monthly instalments) an annual payment equal to 25s. per head of the population of the State. The population of a State in any financial year was considered, for the purposes of this Act, to be the number estimated by the Commonwealth Statistician as existing in the State on the 31st December falling in that financial year.

**6. Special Assistance.**—By the same Act provision was made that, during the period of ten years succeeding 1st July, 1910, a special payment should be made to Western Australia of an annual sum, starting at £250,000 for the first year, and progressively diminishing by £10,000 each subsequent year. One half of the amount was to be debited to all the States (including Western Australia) in proportion to population.

Assistance has also been granted to Tasmania, partly by means of the "Tasmania Grant Act of 1912," and partly by means of a special sum allocated by the Budget of 1913. According to the "Grant Act" a sum of £500,000 was set aside to be paid to Tasmania by ten annual instalments, starting at £95,000, and progressively diminishing by £10,000 until £5000 is reached. In the Budget of 1913 a further sum of £400,000 was allotted to Tasmania, to be paid in nine annual instalments, starting at £5000 and progressively increasing by £10,000 until the last payment, which will, however, be £80,000 instead of £85,000. As the result of these two grants Tasmania will have a first annual instalment of £95,000, then eight instalments of £90,000 each, and a final one of £85,000.

These concessions to Western Australia and Tasmania were granted in consideration of the sacrifices made by these States, when yielding control of their Customs revenue to the Commonwealth. The whole question of the financial relations between the Commonwealth and States since Federation has been fully treated in the chapters on Commonwealth Finance in previous issues of the Year Book, up to and including No. 6.

**7. Accounts of Commonwealth Government.**—The Commonwealth Government, like the States' Governments, operates nearly all its accounts by means of three funds, the Consolidated Revenue Fund, the Trust Fund, and the Loan Fund. The latter only came into existence in the financial year 1911-12, but on the outbreak of war became so important that it is now treated in two parts: a General Loan Fund mainly for purposes of Public Works, and a War Loan Fund for purely military



purposes. The accounts of these funds are now so interwoven, that a proper conspectus of the Commonwealth Accounts can hardly be obtained by an analysis of each of them singly. Two tables are therefore appended, shewing receipts and disbursements from all sources for the last five years. The different funds will then be treated in detail, in the subsequent sections.

## COMMONWEALTH RECEIPTS, 1912-13 to 1916-17.

Heading.	1912-13.	1913-14.	1914-15	1915-16.	1916-17.
	£	£	£	£	£
Consolidated Revenue ... ..	21,907,084	21,741,775	22,419,798	30,762,216	34,067,434
Trust Funds in aid of Revenue ... ..	475,342	1,418,958	1,224,347	...	3,000,000
Total ... ..	22,382,426	23,160,733	23,644,145	30,762,216	37,067,434
General Loan Fund ... ..	1,300,000	2,100,000	2,058,201	2,859,341	...
Unexpended Balance of General Loan Fund from previous years ... ..	39,525	151,498	96,237	...	...
Total ... ..	1,339,525	2,251,498	2,154,438	2,859,341	...
War Loan Fund in aid of Revenue ... ..	...	...	(a)14,471,118	57,656,683	(b)70,844,925
Grand Total ... ..	23,721,951	25,412,231	40,269,701	91,278,240	107,912,359

(a) Credited by the Treasury to Consolidated Revenue. (b) Including £20,233,115 unexpended balance from previous year.

## COMMONWEALTH EXPENDITURE, 1912-13 to 1916-17.

Heading.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£
Expenditure from Consolidated Revenue ... ..	14,930,180	15,458,776	16,056,023	21,415,221	(b)25,719,588
Expenditure from Trust Funds ... ..	475,342	1,418,958	1,224,347	...	3,000,000
Subsidy to States ... ..	6,119,930	6,282,999	6,363,775	6,316,995	6,270,419
Balance paid into Trust Funds ... ..	856,974	...	...	3,000,000	2,077,427
Total ... ..	22,382,426	23,160,733	23,644,145	30,762,216	37,067,434
General Loan Fund Expenditure ... ..	1,188,027	2,155,261	2,154,438	2,859,341	...
Unexpended Balance from General Loan Fund ... ..	151,498	96,237	...	...	...
Total ... ..	1,339,525	2,251,498	2,154,438	2,859,341	...
War Expenditure from War Loan Fund ... ..	...	...	(a)14,471,118	37,423,568	53,114,237
Unexpended Balance from War Loan Fund ... ..	...	...	...	20,233,115	17,730,688
...	...	...	14,471,118	57,656,683	70,844,925
Grand Total ... ..	23,721,951	25,412,231	40,269,701	91,278,240	107,912,359

(a) See footnote (a) to previous table.

(b) Includes £371,118 repayment of advance from Notes Fund in 1914-15. See foot-note (a) to previous table.

## § 2. Consolidated Revenue Fund.

### (A) Nature of Fund.

The provisions made for the formation of a Commonwealth Consolidated Revenue Fund, and the means to be adopted for operating on that fund, are contained in sections 81, 82, and 83 of the Constitution. In section 81 it is provided that "All revenues or moneys raised or received by the Executive Government of the Commonwealth shall form one Consolidated Revenue Fund, to be appropriated for the purposes of the Commonwealth in the manner and subject to the charges and liabilities imposed by this Constitution." A strictly literal interpretation of this section would appear to require all loan and trust moneys received by the Commonwealth Executive to be paid to Consolidated Revenue. It is, however, held by Quick and Garran, in their "Annotated Constitution," that the "generic word *moneys* must be controlled by the preceding specific word *revenues*, and limited to moneys in the nature of revenue." This is the view of the matter which has been adopted by the Commonwealth Treasury in the preparation of its accounts. At present certain moneys received by the Commonwealth, which are not of the nature of revenue, are paid to Trust Account. As regards expenditure from the Consolidated Revenue Fund, section 82 provides that the costs, charges, and expenses incident to the collection, management, and receipt of the Consolidated Revenue Fund should form the first charge thereon, while section 83 stipulates that "no money shall be drawn from the Treasury of the Commonwealth except under appropriation made by law." Such appropriations are either special, and as such are provided for by means of a permanent Act, or are annual, and provided for in an annual Appropriation Act.

### (B) Revenue.

1. **Total Collections.**—The consolidated revenue of the Commonwealth, which in 1901-2, the first complete financial year under the new régime, amounted to £11,296,985, had, in 1916-17, reached a total of £34,067,434, an increase in the period of £22,770,449.

Particulars concerning the total amount of revenue collected by the Commonwealth Government from 1st July, 1912, to 30th June, 1917, are contained in the following table:—

**CONSOLIDATED REVENUE OF THE COMMONWEALTH, 1912-13 to 1916-17.**

	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
Commonwealth	£ 21,907,084	£ 21,741,775	£ 22,419,798	£ 30,762,216	£ 34,067,434

Since 1913-14 the revenue has increased steadily every year. In 1914-15 it was augmented by instalments, amounting to £14,100,000, of the War Loan from the British Government, and also by £371,118 Treasury Bills in aid of revenue. The great increase in the last two years is due to the large expansion in the direct taxation, which will be dealt with in detail in a later section.

2. **Collections per Head.**—In the table given hereunder particulars are furnished of the amount of revenue per head of population collected in respect of the Commonwealth for the last five years:—

**COMMONWEALTH REVENUE PER HEAD OF POPULATION, 1912-13 to 1916-17.**

	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
Commonwealth	£ s. d. 4 12 7	£ s. d. 4 9 3	£ s. d. 4 10 9	£ s. d. 6 4 9	£ s. d. 6 19 9

3. Sources of Revenue.—The following table furnishes particulars concerning the Commonwealth revenue derived from each source during the years 1912-13 to 1916-17 :—

SOURCES OF COMMONWEALTH REVENUE, 1912-13 to 1916-17.

Sources of Revenue.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£
Customs ... ..	13,065,925	12,652,737	12,105,698	13,610,684	12,373,664
Excise ... ..	2,497,109	2,325,333	2,771,566	3,323,419	3,236,623
Postal ... ..	4,226,313	4,511,307	4,594,542	5,053,596	5,498,517
Defence ... ..	39,193	28,936	219,152	881,115	478,326
Patents ... ..	18,355	22,393	17,165	15,487	15,167
Trade Marks, Copyrights, and Designs	5,637	5,932	4,741	5,175	5,432
Quarantine ... ..	13,162	15,173	13,768	19,242	19,671
Coinage ... ..	122,647	208,348	208,515	359,720	354,276
Public Service Pension Funds, Repayments and Transfers	42,006	36,824	44,817	47,604	47,737
Land Tax ... ..	1,564,794	1,609,536	1,953,696	2,040,436	2,121,952
Probate and Succession Duties	...	...	39,646	626,215	1,062,168
Income Tax ... ..	...	...	...	3,932,775	5,621,950
Entertainments Tax	...	...	...	...	110,683
Northern Territory ... ..	40,084	54,777	53,026	64,780	40,650
Credit Balance Northern Territory Funds	24,456	...	...	...	...
Miscellaneous ... ..	257,403	270,179	393,476	781,968	3,080,618
Total ... ..	21,907,084	21,741,775	22,419,798	30,762,216	34,067,434

In addition to the new direct taxation, which has already been mentioned, there has been a fairly steady return from customs and excise. In 1916-17, however, there was a striking fall in the customs returns, due probably to the diminution of imports caused by a scarcity of tonnage. The postal revenue has also shewn a consistent upward tendency. The principal items included in the "Miscellaneous" are Lighthouses and Light Dues; receipts from Trans-Australian Railway; Interest; and Trading Vessels.

4. Customs Revenue for Past Five Years.—Particulars for the Commonwealth as a whole, for the five years 1912-13 to 1916-17, are furnished in the following table :—

COMMONWEALTH CUSTOMS REVENUE, 1912-13 to 1916-17.

Classes.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£
Stimulants ... ..	2,777,492	2,810,222	2,899,540	2,500,606	1,986,321
Narcotics ... ..	1,206,782	1,175,404	1,257,223	1,333,516	1,300,683
Sugar ... ..	691,568	209,375	60,403	587,028	453,380
Agricultural products	1,072,203	1,002,363	1,087,133	1,310,437	862,227
Apparel and textiles	2,367,945	2,514,170	2,302,764	2,902,012	3,197,778
Metals and machinery	1,639,749	1,672,125	1,638,416	1,572,536	1,404,705
Oils, paints, etc.	313,348	310,847	311,545	386,994	338,202
Earthenware, etc.	490,983	426,134	338,095	368,300	249,525
Drugs and chemicals	109,619	122,960	131,764	160,997	163,027
Wood, wicker, and cane	535,576	555,843	455,860	365,969	277,396
Jewellery, etc.	281,631	272,214	253,290	335,147	325,718
Leather, etc.	435,801	470,382	428,106	505,652	498,874
Paper and stationery	237,943	234,504	269,443	346,158	419,323
Vehicles ... ..	328,001	343,633	303,868	499,140	429,077
Musical instruments	165,839	166,059	83,570	100,562	107,915
Miscellaneous articles	361,350	330,548	248,977	295,895	320,334
Other receipts ... ..	40,095	35,954	35,701	39,735	39,179
Total Customs ... ..	13,055,925	12,652,737	12,105,698	13,610,684	12,373,664

It will be seen that during the period here dealt with, the Customs revenue from stimulants and narcotics has represented, approximately, one third of the total Customs revenue, except in the last two years, when the proportion was somewhat less. The

other principal articles from which Customs revenue was derived were "apparel and textiles," "metals and machinery," and "agricultural products."

5. **Excise Collections, 1912-13 to 1916-17.**—Particulars concerning the amount of Excise collected under each head during each of the years ending 30th June, 1913 to 1917, are given hereunder:—

**COMMONWEALTH EXCISE REVENUE, 1912-13 to 1916-17.**

Particulars.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£
Beer ... ..	718,869	792,243	1,205,001	1,485,543	1,387,115
Spirits ... ..	411,192	421,506	514,794	627,431	670,768
Sugar ... ..	518,508	179,149	1,508	(a) 170	...
Tobacco ... ..	840,012	927,293	1,043,885	1,204,556	1,172,787
Licenses ... ..	8,528	5,142	6,368	6,059	5,953
 Total Excise ...	 2,497,109	 2,325,333	 2,771,556	 3,323,419	 3,236,623

(a) Debit.

Comparing the Excise collections for 1916-17 with those for 1912-13, it will be seen that the increase in the revenue from tobacco was about 40 per cent., the yield from beer was nearly doubled, and that from spirits increased about 60 per cent., while the revenue from sugar has vanished, owing to the abolition of the excise duties, and a decrease was also experienced in the return from licenses.

6. **Commonwealth Direct Taxation.**—(a) *General.* Under section 51, sub-section (ii.) of the Constitution, power is given to the Commonwealth Parliament to make laws with respect to taxation, but so as not to discriminate between States or parts of States. Section 90 of the Constitution makes the power of the Commonwealth Parliament to impose Customs and Excise duties an exclusive one, but it would appear that as regards all other forms of taxation the States and Commonwealth possess concurrent powers. The question of the imposition by the Commonwealth Parliament of direct taxes such as land and income taxes is one which has been the subject of considerable discussion, and the opinion has been expressed that the intention of the framers of the Constitution was that of restricting the powers of taxation of the Commonwealth to the imposition of Customs and Excise duties except in case of great national peril. Whatever the intention of the framers may have been in this matter, the Constitution itself contains no such provision, and the Commonwealth Parliament is given an absolutely free hand in the imposition of taxation. Up to the end of the financial year 1909-10 the only taxes so levied were those of Customs and Excise, referred to in detail in the foregoing paragraphs. During the 1910 session of the Federal Parliament, however, an Act—assented to on 17th November, 1910—was passed, giving to the Commonwealth the power of levying a tax upon the unimproved value of all lands within the Commonwealth which were owned by taxpayers, and not specially exempted. Detailed reference to this Act will be found in Commonwealth Year Books Nos. 5 and 6.

(b) *Budget of 1914-15.* The fact stated in the previous paragraph, that there was nothing in the Constitution itself to restrain the Federal Government from entering the field of direct taxation, received further exemplification by the Budget of 1914-15. In the first place the Land Tax was raised by altering the graduation so that the increase in rate over the whole taxable value of the estate, for each succeeding pound of taxable value between £5000 and £75,000, was one eighteen-thousand seven-hundred and fiftieth of a penny, instead of one thirty-thousandth of a penny, as hitherto. The maximum rate for resident owners became 9d. in the £ on estates whose taxable value was more than £75,000. Corresponding increases in the

rates payable by absentee owners were made, rising to a maximum of 10d. in the £ on estates whose taxable value is more than £80,000. These advances were estimated as likely to increase the annual yield of the Land Tax by £1,000,000. In addition to this substantial increase in an already existing tax, the Federal Government, for the first time, introduced Succession Duties on estates of deceased persons, in addition to those already imposed by the State Governments. The Commonwealth scale of succession duty, after starting by the exemption of all estates of less than £1000, ranges from a minimum of 1 per cent. to a maximum of 15 per cent. on estates of a higher taxable value than £71,000. The rate of duty for any estate may be found by the following rule. Divide the number of thousands of pounds in the estate by five, and to the quotient thus obtained add  $\frac{3}{5}$  per cent. in the case of an exact thousand, and  $\frac{1}{5}$  per cent. in every other case. Thus for an estate of £43,000 the duty would be  $9\frac{3}{5}$  per cent. (i.e.  $\frac{43}{5} + \frac{3}{5}$ ), but for an estate of £43,001 the duty would be  $9\frac{4}{5}$  per cent. (i.e.  $\frac{43}{5} + \frac{4}{5}$ ). The succession duties thus outlined yielded £39,646 up to 30th June, 1915, an amount very much less than the estimate. It is possible, however, that sufficient account was not taken of the interval that frequently elapses between a person's death and the taking out of probate on the estate. This is borne out by the great increase in the yield for the years 1915-16 and 1916-17. The respective contributions of the several States are as follows:—

COMMONWEALTH PROBATE AND SUCCESSION DUTIES.

Year.	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	Total.
	£	£	£	£	£	£	£
1914-15	18,474	9,216	4,774	1,900	1,912	3,370	39,646
1915-16	261,477	276,923	23,928	32,790(a)	8,530	22,567	626,215
1916-17	306,249	588,125	61,239	65,130	30,064	11,361	1,062,168

(a) Including Northern Territory, £164.

(c) *Commonwealth Income Tax.*—(i.) The first Commonwealth Income Tax was levied during the financial year 1915-16. The legislation on the subject comprised the Income Tax Assessment Act No. 34 of 1915, as amended by the Income Tax Assessment Acts Nos. 47 of 1915, 37 of 1916, 39 of 1916 and 18 of 1918. The rates are fixed for one year only, and in each financial year an Income Tax Act fixing the rate for that year is passed. That for the present year has not yet been introduced. Various estimates as to the probable yield were made, varying from £3,000,000 to £4,000,000, and the confidence of those who quoted the higher amount was justified by the result. The result of the first two years' collections was as follows:—

COMMONWEALTH INCOME TAX COLLECTIONS, 1915-16 and 1916-17.

States.			1915-16.	1916-17.
			£	£
New South Wales	...	...	1,462,418	1,670,829
Victoria	...	...	1,476,690	2,547,222
Queensland	...	...	497,059	545,475
South Australia	...	...	245,063	433,446
Western Australia	...	...	185,003	314,374
Tasmania	...	...	66,183	108,837
Northern Territory	...	...	359	1,767
Total			3,932,775	5,621,950

(ii.) The principal exemptions are as follows :—

- (a) The salaries of the Governor-General and the various State Governors.
- (b) Income derived from the different Commonwealth securities issued for the purposes of certain of the War Loan Acts 1915.
- (c) The revenue of a municipal corporation or other local governing body.
- (d) The income of religious, scientific or charitable institutions.
- (e) The income of friendly societies, trade unions, or any associations registered under an Act for the settlement of industrial disputes.

(iii.) *Deductions.* The following deductions, amongst others, are allowed :—

- (a) All rates and taxes paid in Australia, exclusive of those paid under this Act.
- (b) Life assurance premiums and fidelity guarantee payments not exceeding a total of £50.
- (c) Payments not exceeding £50 to a friendly society, sustentation fund, superannuation, widows or orphans fund.
- (d) Gifts exceeding £5 each to public charitable institutions, and contributions in cash or kind to a patriotic fund connected with the present war or to any public authority for repatriation purposes.
- (e) The sum of £26 in respect of each child under sixteen years at the beginning of the financial year, wholly maintained by any taxpayer who is not an absentee.

(iv.) *Special deduction to a person (other than a company, an absentee, or a person who is not married and has no dependents) :*

- (a) The sum of £156 less £1 for every £3 by which the income exceeds £156.  
*Special deduction to a person who is not married and has no dependants (not being a company or an absentee) :*
- (b) The sum of £100 less £1 for every £5 by which the income exceeds £100.

When the total taxable income consists partly of income from personal exertion and partly of income from property, the deduction is to be made in the first place from the income from property and any excess is to be deducted from the income from personal exertion.

(v.) It is worthy of note that in the taxation of companies there is deducted from the income not only all the deductions already allowed for, but also so much of the income as is distributed to the members, or shareholders.

(d) *Entertainments Tax.*—This tax was to amount to 1d. for a ticket costing between 6d. and one shilling, and  $\frac{1}{2}$ d. for each additional 6d., or part thereof.

(e) *War Time Profits Tax.*—This tax has recently been passed by Parliament. It provides for a tax on the amount by which the profits made in a war-time financial year (1st July to 30th June following), exceeds the pre-war standard of profits, which may be either :—(a) the average profits of two of the three years before 4th August, 1917, or (b) 10 per cent. on the capital employed in a business. The tax in respect of profits derived in the financial year 1st July, 1915, to 30th June, 1916, was 50 per cent., and in all subsequent years 75 per cent.

**7. Commonwealth Land Tax.**—Particulars as to the Land Tax assessment for each State for the year ending 30th June, 1917, the latest available return at the time of writing, will be found in the following table. Details in regard to rate of tax, etc., will be found in Year Books Nos. 5, 6.

**PARTICULARS OF LAND TAX ASSESSMENT FOR EACH STATE OF THE COMMON-WEALTH FOR THE YEAR ENDING 30th JUNE, 1917.**

State.	Number of Taxable Returns.	Unimproved Value as ascertained by Department.	Tax Assessed.		
			Town.	Country.	Total.
		£	£	£	£
Central—					
Resident ...	1,446	36,378,682	291,337	376,493	667,830
Absentee ...	219	508,809	5,505	2,455	7,970
	1,665	36,887,491	296,842	378,958	675,800
New South Wales—					
Resident ...	4,740	72,613,655	252,092	434,926	687,018
Absentee ...	642	1,287,348	12,105	2,204	14,309
	5,382	73,901,003	264,197	437,130	701,327
Victoria—					
Resident ...	4,377	48,522,928	113,524	191,397	304,921
Absentee ...	704	1,119,776	11,989	3,976	15,965
	5,081	49,642,704	125,513	195,373	320,886
Queensland—					
Resident ...	1,123	13,616,557	28,446	73,026	101,472
Absentee ...	274	374,578	1,537	2,186	3,723
	1,397	13,991,135	29,983	75,212	105,195
South Australia—					
Resident ...	1,631	17,205,505	44,498	74,520	119,018
Absentee ...	320	371,250	2,566	675	3,341
	1,951	17,576,755	47,164	75,195	122,359
Western Australia—					
Resident ...	569	6,830,617	25,421	26,781	52,202
Absentee ...	1,052	445,150	2,350	962	3,312
	1,621	7,275,767	27,771	27,743	55,514
Tasmania—					
Resident ...	477	5,321,566	8,360	26,409	34,769
Absentee ...	300	238,217	528	941	1,469
	777	5,559,783	8,888	27,350	36,238
Grand Total—					
Resident ...	14,363	200,489,510	763,678	1,203,552	1,967,230
Absentee ...	3,511	4,345,128	36,680	13,409	50,089
	17,874	204,834,638	800,358	1,216,961	2,017,319

8. Details of Postal Revenue, 1912-13 to 1916-17.—Particulars concerning the postal revenue of the Commonwealth for each of the financial years from 1912-13 to 1916-17 are contained in the following table :—

**COMMONWEALTH POSTAL REVENUE, 1912-13 to 1916-17.**

Particulars.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£
Private boxes and bags ...	25,618	27,744	29,995	30,743	33,239
Commission—					
Money orders & postal notes	129,653	134,834	129,760	137,355	127,775
Telegraphs ...	811,592	834,316	878,238	893,904	950,842
Telephones ...	860,726	996,047	1,099,417	1,220,855	1,549,961
Postage ...	2,260,000	2,391,424	2,338,489	2,525,873	2,614,542
Miscellaneous ...	138,724	126,942	118,643	244,866	222,158
<b>Total ...</b>	<b>4,226,313</b>	<b>4,511,307</b>	<b>4,594,542</b>	<b>5,053,596<sup>a</sup></b>	<b>5,498,517</b>

(a) These figures are taken from the Auditor-General's Report, and differ slightly from those on page 745 owing to certain small adjustments.

9. Revenue from Patents.—Under the Commonwealth Patents Act 1903, which was assented to on 22nd October, 1903, and came into force on 1st June, 1904, the complete control of the Patents administration of Australia passed from the several State Governments to that of the Commonwealth, which, under section 19 (a) of the Act mentioned, was authorised to collect for each State the fees to which it was entitled under the State Act in respect of proceedings then pending.

The revenue collected since the financial year 1912-13 is shewn in the following table :—

**COMMONWEALTH PATENTS REVENUE, 1912-13 to 1916-17.**

	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£
Revenue ...	18,355	22,393	17,165	15,487	15,167

10. Revenue from Trade Marks, etc.—Under the several Acts of the Commonwealth Legislature relating to trade marks, copyrights, and designs, the Commonwealth Government has assumed the exclusive administration of such matters, and now collects all revenue accruing therefrom. The following table gives particulars of the amounts received for the last five years :—

**COMMONWEALTH TRADE MARKS, COPYRIGHTS AND DESIGNS REVENUE,  
1912-13 to 1916-17.**

	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£
Revenue ...	5,637	5,932	4,741	5,175	5,432

11. Defence Revenue.—The revenue appearing under the head of "Defence" comprises the receipts derived from the sale of stores and clothing, from fines, etc., and for 1916-17 amounted to £478,326.

12. Coinage.—The revenue for the Commonwealth under this head is derived from the profit on coin issued, and is made up of £334,338 from silver coin and £19,938 from bronze coin.



(C) Expenditure.

1. **Nature of Commonwealth Expenditure.**—The disbursements by the Commonwealth Government of the revenue collected by it fell naturally, under the "book-keeping"\* system, into three classes, viz.:—

- (a) Expenditure on transferred services.
- (b) Expenditure on new services.
- (c) Payment to States of surplus revenue.

Of these three, only the first two were actual expenditure, the last being merely a transfer, the actual expenditure being incurred by the States. In accordance with the provisions of the Constitution, the expenditure on transferred services was, under the "book-keeping" system, debited to the several States in respect of which such expenditure was incurred, while the expenditure on new services was distributed *per capita*. Surplus Commonwealth revenue was paid to the States monthly. During the earlier years of Federation, viz., until the end of the year 1903-4, new works, etc., for transferred departments were treated as transferred expenditure, and were charged to the States on whose behalf the expenditure had been incurred. In subsequent years all such expenditure was regarded as expenditure on new services, and was distributed amongst the States *per capita*. Under the new system of keeping the accounts there is no further debiting of expenditure to the several States.

2. **Total Expenditure.**—The expenditure by the Commonwealth Government during the period 1912-13 to 1916-17 is shewn in the following table:—

COMMONWEALTH EXPENDITURE, 1912-13 to 1916-17.

	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£
Commonwealth ...	15,787,154	15,458,776	16,056,023	24,415,221	27,797,015

The largely increased expenditure of recent years is due partly to Old-age and Invalid Pensions, partly to fleet construction, and partly to such public works as the Trans-Australian Railway, Federal Capital, etc. In 1914-15 an additional amount of £14,471,118 was spent, made up of £14,100,000 war loan from the Imperial Government, and £371,118 Treasury Bills in aid of revenue. In 1915-16 the expenditure included £3,000,000 set aside for the purposes of Invalid and Old-age Pensions in subsequent years. These totals include amounts paid into Trust Funds, but exclude subsidy to States.

3. **Expenditure per Head.**—Particulars concerning the Commonwealth expenditure per head are furnished hereunder:—

COMMONWEALTH EXPENDITURE PER HEAD OF POPULATION, 1912-13 to 1916-17.

	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Commonwealth ...	3 6 8	3 3 5	3 5 0	4 19 0	5 14 0

4. **New Works, etc.**—As previously mentioned, the Commonwealth expenditure on new works, etc., for transferred departments was, prior to 1904-5, included under the head of "transferred" expenditure, but in that and subsequent years up to 1909-10 was treated as "other" expenditure, and debited to the States *per capita*. Particulars of the expenditure on new works, etc., during the last five years are given in the following table:—

\* For an exposition of the "book-keeping system" see Commonwealth Year Book No. 6, p. 780.

## COMMONWEALTH EXPENDITURE ON NEW WORKS FOR FIVE YEARS, 1913 to 1917.

Year ended 30th June.	Defence.	Trade and Customs.	Post- master General.	Home Affairs.	External Affairs.	Treasury.	Prime Minister's Depart- ment.	Home and Territories.	Works and Railways.	Total.
£	£	£	£	£	£	£	£	£	£	£
1913	1,258,277	51,372	1,088,022	186,345	65,290	4,076	...	...	...	2,653,282
1914	1,079,940	56,014	1,121,632	266,124	50,653	1,637	...	...	...	2,576,000
1915	1,520,684	56,338	831,828	217,784	30,647	6,396	...	...	...	2,673,939 <sup>a</sup>
1916	1,940,682	133,976	644,134	168,898	50,598	2,547	...	...	...	2,940,835
1917	1,765,253	291,419	590,770	(b)	(b)	2,085	120,591	293,836	1,314,793	4,288,747

(a) Including £262 for Attorney-General's Department. (b) Merged into other Departments.

It will be seen that the Commonwealth expenditure under this head has become very considerable in recent years. The main cause of this heavy increase is the large expenditure on fleet construction, but in the last year under review a very large expenditure was debited to the Works and Railways Department.

5. **Cost of Departments, etc.**—Arranged in such a manner as to shew under each Department the expenditure on behalf of that Department, the cost of the several branches of the Commonwealth service for the years 1912-13 to 1916-17 was as follows:—

## COST OF COMMONWEALTH DEPARTMENTS, Etc., 1912-13 to 1916-17.

Departments, etc.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
£	£	£	£	£	£
Governor-General ...	21,648	17,815	24,750	23,535	25,279
Parliament ...	281,261	243,163	340,605	263,397	344,060
Prime Minister ...	57,559	82,847	56,642	60,790	155,797
External Affairs ...	539,722	678,974	595,178	840,199	...
Attorney-General ...	66,517	82,442	78,466	86,164	94,195
Home Affairs ...	129,972	152,299	440,932	592,251	...
Treasury ...	2,910,224	2,787,034	2,527,833	3,817,851	1,545,923 <sup>(d)</sup>
Trade and Customs ...	875,784	730,458	551,318	589,121	648,147
Defence ...	2,612,687	2,950,722	3,545,086	4,518,534	2,095,152
Navy ...	...	...	...	2,324,173	2,201,661
Postmaster-General ...	4,781,524	5,157,022	5,221,274	5,358,371	5,288,998
Home and Territories ...	...	...	...	...	484,274
Works and Railways ...	...	...	...	...	886,661
All other Expenditure ...	3,510,256	2,576,000	2,673,939	2,940,835	11,949,441
<b>Total ...</b>	<b>15,787,154</b>	<b>15,458,776</b>	<b>16,056,023</b>	<b>24,415,221</b>	<b>27,797,015</b>

(a) Exclusive of £14,471,118 spent from loans in aid of Revenue. (b) Including £3,000,000 carried forward in respect of Old Age and Invalid Pensions in subsequent years. (c) Including £2,077,427 carried forward. (d) In addition £3,000,000 was spent on Invalid and Old Age Pensions from Trust Funds.

The expenditure in connection with the sugar bounties is mainly responsible for the variations which have taken place in the cost of the Department of Trade and Customs. The amount paid in Old-age and Invalid Pensions is included in Treasury expenditure for every year. In 1916-17 the large amount under the heading "all other expenditure" includes £8,421,654 for War Services, made up as follows:—Special appropriations £5,988,058; Treasury £1,186,488; Defence £550,377; Navy £686,701; and Trade and Customs £10,030. More detailed reference to the items included under the above general heads is furnished in the succeeding paragraphs.

6. **Governor-General.**—In section 3 of the Constitution it is enacted that, until the Commonwealth Parliament otherwise provides, there shall be payable out of the Consolidated Revenue Fund for the salary of the Governor-General an annual sum of ten thousand pounds, and a proviso is made that the salary of the Governor-General shall not be altered during his continuance in office. The total expenditure in connection with the Governor-General and establishment for the five years 1912-13 to 1916-17 is as follows:—

**EXPENDITURE, GOVERNOR-GENERAL AND ESTABLISHMENT, 1912-13 to 1916-17.**

Details.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£
Salary ... ..	10,000	10,000	10,000	10,000	10,000
Governor-General's Establishment	6,983	5,118	5,573	4,365	5,079
Contingencies ... ..	4,665	2,697	9,177	9,170	10,200
<b>Total ... ..</b>	<b>21,648</b>	<b>17,815</b>	<b>24,750</b>	<b>23,535a</b>	<b>25,279</b>

(a) See also General Government, § 1, paragraph 7.

**7. Parliament.**—Under this head have been grouped all the items of expenditure connected with the Parliamentary government of the Commonwealth, including the salaries of the Ministers and the allowances to senators and members of the House of Representatives. Details for the five years 1912-13 to 1916-17 are furnished in the table given hereunder:—

**EXPENDITURE, COMMONWEALTH PARLIAMENT, 1912-13 to 1916-17.**

Details.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£
Salaries of Ministers ... ..	12,000	12,000	12,000	13,597	13,650
Allowances to Senators ... ..	20,950	21,004	18,979	21,000	20,866
Allowances to Members of House of Representatives ... ..	39,198	43,745	39,556	43,132	39,072
Officers, staff, contingencies, etc. ...	32,873	36,703	36,347	37,746	36,771
Repairs, maintenance, etc. ... ..	3,172	2,808	4,411	6,085	1,988
Printing ... ..	19,341	20,078	21,429	17,817	18,997
Travelling expenses of Members and others	9,252	10,627	10,173	10,458	10,339
Insurance ... ..	342	342	342	342	342
Electoral Office ... ..	6,764	11,716	49,815	49,155	53,091
Election expenses ... ..	82,370	28,252	84,600	1,360	83,276
Referendum ... ..	...	...	...	21,334	77
Administration of Electoral Act ...	54,441	54,541	57,691	34,687	60,100
Miscellaneous ... ..	558	1,347	5,262	6,684	5,491
<b>Total ... ..</b>	<b>281,261</b>	<b>243,163</b>	<b>340,605</b>	<b>263,397</b>	<b>344,060</b>

In section 66 of the Constitution, provision is made that there shall be payable out of the Consolidated Revenue Fund of the Commonwealth, for the salaries of Ministers of State, an annual sum which, until Parliament otherwise provides, shall not exceed £12,000. This was modified in 1915-16, when the Minister of the Navy was given separate Cabinet rank. Allowances to senators and members of the House of Representatives are also provided for in the Constitution, section 48 of which specifies that until Parliament otherwise provides, each such allowance shall consist of £400 a year, reckoned from the day on which the member takes his seat. During the second session of the Commonwealth Parliament in 1907 the question of allowances to members came under consideration, and an Act was passed raising the annual allowance from £400 to £600, such increase to date from 1st July, 1907. This provision is still in force.

**8. Prime Minister's Department.**—This is a new department created during the financial year 1911-12. In addition to the Prime Minister's Office it includes the Audit Office taken from the Treasury, the Executive Council taken from the External Affairs

Department, and the Public Service Commissioner's Office taken from the Home Affairs Department. In 1916-17 it assumed control of the High Commissioner's Office in London, which was detached from the old External Affairs Department, when the latter was merged in the Home and Territories Department. The expenditure for the last five years is shewn in the following table:—

**EXPENDITURE, PRIME MINISTER'S DEPARTMENT, 1912-13 to 1916-17.**

Details.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£
Salaries, Contingencies, etc.	21,685	8,961	11,087	11,906	21,691
Executive Council ...	128	152	164	137	170
Audit Office ...	10,663	12,167	10,943	11,574	16,726
Rent, Repairs, etc. ...	3,381	2,552	2,829	3,021	4,678
Public Service Commissioner's Office...	20,683	22,303	23,255	21,252	22,142
High Commissioner's Office	...	...	...	...	31,518
Miscellaneous ...	1,019	36,712	8,364	12,900	58,872
Total ...	57,559	82,847	56,642	60,790	155,797

9. **Home and Territories.**—Under this new department, created in the financial year 1916-17, is placed the bulk of the old External Affairs Department (after the removal of the London office), and Census and Statistics, and Meteorological Office taken from the old Home Affairs Department. The expenditure for the year 1916-17 was as follows:—

**EXPENDITURE, HOME AND TERRITORIES DEPARTMENT, 1916-17.**

Details.	1916-17.
	£
Chief Office ...	17,065
Census and Statistics ...	18,505
Meteorological Branch ...	27,499
Papua ...	61,746
Rents, repairs, etc. ...	1,951
Northern Territory ...	293,183
Miscellaneous ...	64,325
Total ...	484,274

10. **Northern Territory.**—The Department of External Affairs assumed control of the administration of the Northern Territory from 1st January, 1911, and separate accounts were issued for the first time in the Treasurer's statement for the financial year ending 30th June, 1911. The chief sources of revenue for the year ending 30th June, 1917, were the Customs and Excise, amounting to £19,156, and railways. £32,605. The Postal revenue amounted to £8160, whilst the total revenue was £102,980. The chief items of expenditure were as follows:—Postal Department, £19,437; goldfields and mining, £31,837; and railways, £61,016. The total expenditure was £415,546. In addition to this expenditure the Commonwealth is liable for interest on loans and redemption, which for this financial year totalled £389,819. The deficiency for the year was £702,385.

REVENUE, NORTHERN TERRITORY, 1912-13 to 1916-17.

Details.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£
Customs and Excise ...	12,337	12,628	13,466	21,282	19,156
Credit Balance paid by South Aust. ...	24,456	...	...	...	...
Miscellaneous ...	44,158	61,029	69,599	75,898	83,824
Deficiency for year ...	388,658	458,878	391,862	649,518	702,385
Total ...	469,609	532,535	474,927	746,698	805,365

EXPENDITURE, NORTHERN TERRITORY, 1912-13 to 1916-17.

Details.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£
Interest and Redemption ...	227,561	246,271	246,442	464,510	389,819
Miscellaneous ...	242,048	286,264	228,485	282,188	415,546
Total ...	469,609	532,535	474,927	746,698	805,365

11. **Papua.**—The sums shewn in the table on page 772 as expenditure in connection with Papua represent the Commonwealth grants towards the cost of administering that territory, as well as certain additional amounts. The ordinary revenue and expenditure of Papua are kept distinct from those of the Commonwealth. Apart from the Commonwealth contribution, the principal source of revenue is the Customs House. Details for the five years 1912-13 to 1916-17 are as follows :—

PAPUAN REVENUE, 1912-13 to 1916-17.

Details.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£
Customs dues ...	33,453	37,341	32,244	33,931	45,353
Other collections ...	18,882	17,363	19,717	15,380	18,215
Commonwealth grant ...	(a)48,000	30,000	30,000	30,000	30,000
Total ...	100,335	84,704	81,961	79,311	93,568

(a) Including £18,000 for special purposes.

The expenditure for 1916-17 totalled £83,740, the main outlay being on the Government Secretary's Department and the Departments of Agriculture, Lands, and Public Works. The total expenditure for each of the five years 1912-13 to 1916-17 was as follows :—

PAPUAN EXPENDITURE, 1912-13 to 1916-17.

Particulars.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£
Total expenditure ...	89,170	81,095	82,535	77,913	83,740

**12. Attorney-General's Department.**—The extra expenditure connected with this Department of late years has been brought about in large measure by the extension of the Federal High Court, the total cost of which, including the Court of Conciliation and Arbitration, for the year 1914-15, amounted to £34,623, in 1915-16 to £40,084, and in 1916-17 to £42,848. Details for the five years 1912-13 to 1916-17 are furnished hereunder:—

**EXPENDITURE, ATTORNEY-GENERAL'S DEPARTMENT, 1912-13 to 1916-17.**

Details.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£
Attorney-General's Office ...	5,279	6,302	5,852	10,457	13,880
Crown Solicitor's Office ...	6,046	7,565	8,371	10,078	10,766
Salaries of Justices of High Court ...	16,495	21,500	21,175	21,500	21,500
High Court expenses ...	6,839	11,209	9,862	9,947	10,280
Court of Conciliation and Arbitration ...	4,690	6,450	3,586	8,637	11,068
Rent, repairs, etc. ...	3,745	3,733	4,755	3,412	3,217
Patents, Trade Marks, etc. ...	22,768	24,439	23,485	20,579	21,856
Miscellaneous ...	655	1,244	1,380	1,554	1,628
<b>Total ...</b>	<b>66,517</b>	<b>82,442</b>	<b>78,466</b>	<b>86,164</b>	<b>94,195</b>

**13. Works and Railways Department.**—The great extension of Commonwealth Works and Railways led, in 1916-17, to the separation of these functions from the old Home Affairs Department and the constitution of a separate office. This new office also administers the Railways, formerly under the control of the old External Affairs Department. The expenditure for the year 1916-17 is as follows:—

**EXPENDITURE, WORKS AND RAILWAYS DEPARTMENT, 1916-17.**

Details.	1916-17.
	£
Chief Office ...	40,558
Trans-Australian Railway ...	302,550
Port Augusta-Oodnadatta Railway and Northern Territory Railways ...	312,907
Miscellaneous ...	230,646
<b>Total ...</b>	<b>886,661</b>

The large sum under the heading "Miscellaneous" is due mainly to provision for interest and sinking fund.

**14. Treasurer's Department.**—The sub-departments under the control of the Commonwealth Treasurer are the Treasury, the Old-age Pensions Department, and the Taxation Office. The Audit Office was transferred to the Prime Minister's Department in 1911-12. The rather large item for "Miscellaneous" in 1914-15 includes the Belgian grant of £100,000. Details of the expenditure of this department for each of the five years 1912-13 to 1916-17 are furnished hereunder:—

EXPENDITURE, TREASURER'S DEPARTMENT, 1912-13 to 1916-17.

Details.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£
Treasury ... ..	17,052	22,696	26,291	26,996	37,993
Old-age pensions—Salaries, etc.	42,543	44,942	46,421	42,796	52,214
Rents, repairs, etc. ...	7,101	6,294	6,654	17,103	15,487
Invalid and Old-age pensions ...	2,288,388	1,881,794a	1,479,963b	2,859,766	(c)453,344
Taxation ... ..	73,452	79,525	78,737	131,089	198,023
Maternity Allowance...	412,375	674,990	694,275	659,745	662,030
Miscellaneous ... ..	69,313	76,793	195,492	80,356	126,832
Total ... ..	2,910,224	2,787,034	2,527,833	3,817,851	c1,545,923

(a) In addition, £697,471 was spent from Trust Funds. (b) In addition, £1,224,347 was spent from Trust Funds. (c) In addition £3,000,000 was spent from Trust Funds, and the War Services include £1,149,242 for War Pensions, £37,090 for pensions administration, and £156 miscellaneous, all debited to this department.

15. **Trade and Customs.**—Under this head have been included the expenditure of all the sub-departments under the control of the Minister of Trade and Customs, as well as the amounts payable as sugar and other bounties and the expenses in connection therewith. The administration of Patents, Trade Marks, and Copyright is now entrusted to the Attorney-General's Department. The fluctuations in the total expenditure of this department in recent years have been mainly due to variations in the amount payable in respect of sugar bounties. Particulars for the five years 1912-13 to 1916-17 are given in the following table :—

EXPENDITURE, TRADE AND CUSTOMS DEPARTMENT, 1912-13 to 1916-17.

Details.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£
Chief Office ... ..	13,582	14,429	16,240	15,986	19,223
Customs (ordinary) ... ..	347,657	341,116	354,205	323,309	344,303
Fisheries ... ..	6,754	7,443	4,447	492	170
Analyst ... ..	2,523	3,441	3,441	3,576	4,440
Audit (proportion) ... ..	7,763	8,144	7,427	6,722	5,786
Quarantine ... ..	23,371	44,063	32,057	38,804	46,251
Pensions and retiring allowances	14,099	13,318	16,041	14,524	16,215
Rents, repairs, etc. ... ..	13,371	14,872	15,448	21,067	19,103
Sugar bounties and expenses ...	370,125	149,244	4	...	174
Bounties ... ..	18,171	14,304	28,286	6,767	2,995
Iron Bonus ... ..	18,098	51,810	15,072	24,465	11,454
Lighthouses... ..	...	...	...	86,524	128,767
Miscellaneous ... ..	40,270	68,274	58,650	46,885	49,266
Total ... ..	875,784	730,458	551,318	589,121	a648,147

(a) In addition, £10,030 was spent as War Services.

16. **Defence.**—The Commonwealth expenditure in connection with Defence, which in 1901-2 amounted to £361,218, had by 1912-13 grown to £2,612,687. The largeness of the expenditure for recent years has been chiefly in connection with the new defence system and the war. Particulars for the five years 1912-13 to 1916-17 are as follows :—

## EXPENDITURE, DEFENCE, 1912-13 to 1916-17.

Details.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£
Chief Office ... ..	74,480	86,191	88,233	46,441	49,267
Military ... ..	1,557,443	1,547,921	2,977,903 {	1,273,885	1,311,481
Naval ... ..	790,750	979,554		(a)	(a)
Audit (proportion) ... ..	1,298	1,362	2,398	5,486	11,117
Pensions and retiring allowances ... ..	1,121	1,103	1,427	363	191
Rents, repairs, etc. ... ..	58,746	70,471	79,665	76,744	68,314
Miscellaneous ... ..	128,849	264,120	395,460	109,621	104,405
Total ... ..	2,612,687	2,950,722	3,545,086	4,518,534 (b)	2,095,152 (c)

(a) Now a separate department. (b) Including £3,005,994 war expenditure from revenue.  
(c) Including £550,377 war services, but excluding appropriations for Interest and Sinking Fund.

17. **Navy Office.**—During the financial year 1915-16, the Navy Office, owing to its increasing importance, was separated from the Defence Department and constituted an independent Department. Appended is the expenditure for the last two years, under similar headings to the Defence Department:—

## EXPENDITURE, NAVY DEPARTMENT, 1915-16 to 1916-17.

	1915-16.	1916-17.
	£	£
Chief Office ... ..	39,170	40,747
Naval ... ..	1,444,521	1,401,659
Audit (proportion) ... ..	1,166	1,272
Pensions and retiring allowances ... ..	899	899
Rents, repairs, etc. ... ..	17,402	15,969
Miscellaneous ... ..	49,160	54,115
Total ... ..	(a) 2,324,173	(b) 2,201,361

(a) Including £771,855 War Expenditure from Revenue. (b) Including War Expenditure from Revenue, £686,700.

18. **Postal.**—From a total of £4,781,524 in 1912-13, the cost of the Department under the control of the Postmaster-General advanced to £5,288,998 in 1916-17, an increase of £507,474. The large amount of "Miscellaneous" since 1912-13 is due, in the main, to the payment of interest on transferred properties, which is discussed in detail later on. Details for the five years 1912-13 to 1916-17 are furnished hereunder:—

## EXPENDITURE, POSTAL DEPARTMENT, 1912-13 to 1916-17.

Details.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£
Chief Office ... ..	20,154	22,506	23,606	21,400	22,821
Postal Department (ordinary) ... ..	4,145,803	4,567,895	4,809,672	4,904,839	4,853,886
Audit (proportion) ... ..	3,184	3,340	3,955	3,670	2,981
Pensions and retiring allowances ... ..	42,757	48,400	48,073	53,358	55,877
Rents, repairs, etc. ... ..	84,883	88,884	84,044	92,083	67,494
Miscellaneous ... ..	484,743	425,997	251,924	283,021	285,939
Total ... ..	4,781,524	5,157,022	5,221,274	5,358,371	5,288,998



19. **Miscellaneous.**—In addition to the foregoing there are certain items which do not come under any of the heads enumerated. For 1916-17 the total expenditure under this heading was £11,949,441, made up mainly from War Services not allotted to Defence and Navy £7,184,577, and new works £4,288,747. Detailed expenditure on new works for the past five years has already been shewn in the table on page 770.

(D) **Subsidy Paid to States.**

1. **Net Revenue.**—As mentioned in sub-section 1 of this section, the Constitution provided under sections 87, 93 and 95 for the payment to the States of all surplus revenue of the Commonwealth, such payment to amount in the aggregate during the continuation of the Braddon clause to not less than three-fourths of the net revenue from Customs and Excise. The expression "net revenue" used in section 87 has been taken to mean the gross revenue less drawbacks and refunds, and less also cost of collection. This view, adopted by the Commonwealth Government, was that indicated by Quick and Garran in their "Annotated Constitution of the Australian Commonwealth," in which they say: "The net revenue from duties of Customs and Excise is the total receipts from these sources after deducting the cost of collection. No attempt was made in the Constitution to define the deductions which may be made in order to arrive at the net revenue; this is a matter of book-keeping, which is left wholly to the Executive Government." In actual practice the statutory three-fourths of net Customs and Excise revenue was ascertained by the Commonwealth Treasury by deducting from the total Customs and Excise revenue (less drawbacks and refunds) the "transferred" expenditure of the Department of Trade and Customs and the expenditure on new works for that department, and taking three-fourths of the result.

2. **Payments to the Several States.**—In the following table are furnished particulars relative to the amounts actually paid to the several States on account of each of the financial years 1912-13 to 1916-17:—

**COMMONWEALTH SUBSIDY PAID TO STATES, 1912-13 to 1916-17.**

State.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£
New South Wales ...	2,178,683	2,248,241	2,287,295	2,297,872	2,286,913
Victoria ...	1,692,121	1,733,229	1,757,894	1,743,467	1,722,409
Queensland ...	780,051	810,274	831,486	836,743	823,771
South Australia ...	527,151	540,113	542,715	540,649	531,340
Western Australia ...	605,215	613,606	606,900	591,064	569,982
Tasmania ...	(a) 241,709	(b) 247,536	(b) 247,485	(b) 247,200	(b) 246,004
Total ...	(a) 6,024,930	(b) 6,192,999	(b) 6,273,775	(b) 6,256,995	(b) 6,180,419

(a) Not including special grant of £95,000 to Tasmania.  
(b) " " " £90,000 " "

In 1912-13, the amounts received by each State were the smallest for the period under review, the total increasing in 1913-14. The rate of increase was checked in 1914-15 owing to the departure of the troops, and in 1915-16 four of the States, from this cause, shewed a decrease. This was still more marked in 1916-17, but, owing to the return of invalided soldiers, an improvement will possibly be manifested in 1917-18. The amounts allotted to Tasmania in the last three years are exclusive of the first instalments of the special payment to which reference has already been made (see page 760).

3. **Commonwealth Subsidy per head of Population.**—The following table furnishes particulars concerning the amount of surplus Commonwealth revenue per head of population which the several States received during the financial years 1905-6 to 1909-10, and is of interest in connection with the present financial agreement, under which the Commonwealth pays 25s. per head of population to all the States for a period of ten years, subject to a special arrangement in favour of Western Australia (see page 760).

**COMMONWEALTH SUBSIDY PER HEAD OF POPULATION PAID TO STATES,  
1905-6 to 1909-10.**

State.	1905-6.	1906-7.	1907-8.	1908-9.	1909-10.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
New South Wales ...	1 16 10	1 19 9	2 6 4	2 2 0	2 3 1
Victoria ...	1 14 7	1 16 1	1 18 7	1 11 9	1 13 0
Queensland ...	1 12 3	1 14 10	1 18 1	1 16 10	1 18 1
South Australia ...	1 10 8	1 14 10	2 1 11	1 16 10	2 2 6
Western Australia ...	3 9 9	3 0 9	2 19 1	2 8 4	2 13 3
Tasmania ...	1 7 5	1 8 2	1 9 6	1 5 6	1 6 3
Commonwealth ...	1 16 8	1 18 4	2 2 7	1 17 6	1 19 3

4. **Proportion Actually Paid.**—For the period of nine and a-half years from the 1st January, 1901, to 30th June, 1910, the percentage of net revenue from Customs and Excise duties paid to the several States was as follows:—New South Wales, 84 per cent.; Victoria, 80 per cent.; Queensland, 74 per cent.; South Australia, 84 per cent.; Western Australia, 86 per cent.; Tasmania, 78 per cent.

### § 3. Trust Fund.

1. **Trust Accounts.**—The Trust Fund credit balance on 30th June, 1917, amounted to £60,154,961, as compared with £54,098,016 for the corresponding date in the year ending 30th June, 1916. These enormous amounts are due mainly to the Australian Notes Account referred to in detail in par. 3 hereunder. Details concerning the various trust accounts contributing to this amount are as follows:—

**COMMONWEALTH TRUST FUND, 30th JUNE, 1917.**

Trust Accounts.	Balance at 30th June, 1917.	Trust Accounts.	Balance at 30th June, 1917.
	£		£
Small Arms Ammunition ...	79,754	Officers' Assurance... ..	2,787
Defence Clothing Material ...	576,828	Defalcations ... ..	1,932
Small Arms... ..	15,633	Guarantee Fund ... ..	579
Unclaimed Militia Pay—Military	14,040	Naval Defence ... ..	42,762
" Naval...	184	London Liabilities ... ..	4,881,496
Military Expenses ... ..	120	Quarantine ... ..	14
Deferred Pay—Naval ... ..	295,191	Other Trust Moneys ... ..	304,009
Customs Officers' Overtime ...	1,223	Minerals Account ... ..	3,056
Money Order ... ..	654,500	Australian Notes Account ...	49,970,080
International Postal and Money		Miscellaneous ... ..	1,183,211
Order ... ..	13,273		
Invalid and Old-age Pensions...	2,114,289	Total ... ..	60,154,961

2. **Distribution.**—The amounts to credit of Trust Fund in the several States on 30th June, 1917, were as follows:—New South Wales, £1,154,383; Victoria, £57,596,627; Queensland, £446,002; South Australia, £389,176; Western Australia, £344,359; and Tasmania, £224,414.

3. **Australian Notes Account.**—After the passage of the Australian Notes Act, Australian notes began to appear in circulation in December, 1910. For the first half of the calendar year 1911, they circulated side by side with bank notes and Queensland Treasury notes. After 30th June, 1911, the penal clauses of the Notes Act came into operation, and the banks and the Queensland Government began to withdraw their notes from active circulation. By the end of the year the process was virtually complete.

On 30th June, 1917, the notes issued and unredeemed amounted to £47,201,362. Against this there was a reserve in gold coin of £15,418,391, or 32.67 per cent., and other assets, of which the most important were investments in Government Stock and fixed deposits, totalling £30,507,803, and returning an annual income of £1,215,996.

The position, according to a Treasury return issued at the end of May, 1918, was as follows:—

**COMMONWEALTH NOTES ISSUED AND UNREDEEMED AT 20th MAY, 1918.**

	£
10s. ... ..	1,799,786½
£1 ... ..	12,229,180
£5 ... ..	7,115,760
£10 ... ..	3,120,500
£20 ... ..	524,120
£50 ... ..	1,191,150
£100 ... ..	1,115,800
£1000 ... ..	26,546,000
	<hr/>
	53,642,296½

The amount of the gold reserve was £16,968,804½, representing 31.63 per cent. of the liability.

The subject is also dealt with at some length in Section XXI., Sub-section 2, *Banking*.

4. *Advances by Commonwealth Government to States.*—Reference has been made in the previous paragraph to the investments of the gold reserve from the Australian Notes Account. A large proportion has been advanced to the respective State Governments for short periods, sometimes as low as one year. This is a novel and interesting departure in Australian Public Finance, and in view of the new financial relations thus brought about between the Commonwealth and State Governments, the following table is appended, giving full particulars of the investments of £30,507,803, to which reference has already been made:—

**AUSTRALIAN NOTES ACCOUNT.—PARTICULARS OF INVESTMENT AS AT 30th JUNE, 1917.**

Investment.	Amount.	Rate of Interest.	Date of Maturity.	Annual Amount of Interest.
	£	%		£
Commonwealth Inscribed Stock ...	3,830,000	3½	1962-1972	134,050
"    War Loan Stock ...	63,640	4½	1925	2,864
"    Treasury Bills ...	4,279,163	4	(a)	171,167
<b>STATE GOVERNMENT SECURITIES</b>				
New South Wales Stock ...	800,000	3½	1919	30,000
"    Treasury Bills ...	7,400,000	4½	(b)	305,250
Victorian Debentures (face value, £800,000)	784,000	3½	1921	28,000
"    "    ... ..	3,900,000	4½	(b)	160,875
South Australian Treasury Bills...	2,600,000	4½	(b)	107,250
Western Australian Stock ...	590,000	3½	1926	22,125
"    Treasury Bills ...	3,100,000	4½	(b)	127,875
Tasmanian Stock ...	460,000	3½	1921	17,250
"    Treasury Bills ...	1,000,000	4½	(b)	41,250
<b>FIXED DEPOSITS—</b>				
Sundry Banks ...	1,701,000	4	1916-17	68,040
<b>Total ...</b>	<b>30,507,803</b>	<b>—</b>	<b>—</b>	<b>1,215,996</b>

(a) Not fixed. (b) Treasury Bills with currency of two years from date of loan instalment.

In the financial year 1913-14 the Commonwealth Government called in as far as possible its outstanding advances to the State Governments. The money lent on fixed deposit was taken up as the term expired; and furthermore, the Commonwealth Government, requiring additional money for the expenditure on public works, etc., induced some of the State Governments to discount a portion of their securities held by the Commonwealth. The money thus obtained was spent in the purchase of further Commonwealth Inscribed Stock, thus increasing the Loan Fund, to which reference is made in the next section. On the outbreak of war the Commonwealth Government agreed to lend to the States (Queensland standing out of the arrangement) the sum of £18,000,000 for the purpose of maintaining the expenditure on public works. The bulk of the money, lent to the States from the Note Account, was advanced in pursuance of that undertaking.

5. **London Flotations on behalf of States.**—Act No. 17 of 1916 authorised the Treasurer to borrow £8,940,000 in the United Kingdom, and Act No. 16 of 1917 to raise £8,000,000, and to lend the amount to the several States, other than that of New South Wales, and, pending the borrowing of the money to advance the amounts set forth in the Acts out of loans made by the Government of the United Kingdom to the Commonwealth. In pursuance of these Acts, £7,192,966 was distributed to the States up to 30th June, 1917, being the proceeds of a loan of £7,500,000 subscribed under Act No. 17 of 1916. In addition, a sum of £3,019,220 was advanced from loans received for war purposes. Flotation expenses and discount together amounted to £304,067, and these were debited to the States. Consequently the total charged to the States by the Commonwealth under this head at 30th June, 1917, was £10,516,253, allocated as follows:—

**COMMONWEALTH LOANS RAISED IN LONDON ON BEHALF OF STATES  
AS AT 30th JUNE, 1917.**

State.	£
Victoria... ..	1,845,356
Queensland ... ..	3,069,170
South Australia ... ..	2,461,182
Western Australia ... ..	2,507,471
Tasmania ... ..	633,074
Total ... ..	10,516,253

6. **Surplus Revenue.**—It has been the practice to transfer to the Trust Accounts mentioned below the amount of the Surplus Revenue, and the amount was expended in subsequent years as required.

	Invalid and Old Age Pensions Account.	Naval Defence Account. (Fleet construction.)	Total.
—	£	£	£
Surplus transferred—			
1910-11 ... ..	918,587	918,588	1,837,175
1911-12 ... ..	146,256	278,242	424,498
1912-13 ... ..	856,974	...	856,974
1915-16 ... ..	3,000,000	...	3,000,000
Total ... ..	4,921,817	1,196,830	6,118,647
Surplus expended—			
1912-13 ... ..	...	475,342	475,342
1913-14 ... ..	697,470	721,488	1,418,958
1914-15 ... ..	1,224,347	...	1,224,347
1916-17 ... ..	3,000,000	...	3,000,000
Total ... ..	4,921,817	1,196,830	6,118,647

### § 4. Commonwealth Public Debt.

Although it was not until 1915 that the Federal Government appeared before the public as a direct borrower, there had been a Commonwealth Public Debt for many years. It includes several items, such as the balance of the debt taken over from South Australia, the money owing to the States for transferred properties, the Commonwealth General Loan Fund, the loans for military purposes, etc. In view of the recent large expansion of the Public Debt, and its present importance in Commonwealth public finance, the different items are treated *seriatim* in the sub-sections that follow.

1. **Loans Taken Over from South Australia.**—The first portions of the debt were contracted at the beginning of 1911, when the Commonwealth assumed responsibility for the administration and the liabilities of the Northern Territory and the Port Augusta-Oodnadatta Railway. At 30th June, 1911, the debt on account of the former was £3,657,836, and on account of the latter, £2,274,486 a total of £5,932,322. As the securities fall in they are redeemed by the Commonwealth Government, the money required being taken from the Loan Fund, which was created for this reason, amongst others. This item is thus a constantly diminishing one, and on 30th June, 1917, stood at £4,531,519, of which £2,772,516 was on account of the Northern Territory, and £1,759,003 on account of the railway.

2. **Loan Fund.**—Up to 1911 the Commonwealth Government had met its Public Works expenditure out of revenue. In that year, however, the Commonwealth being faced with the heavy prospective cost of the Transcontinental Railway and the Federal Capital Territory, it was decided to initiate a Loan Fund similar to those of the States. The flotation of this Fund was greatly assisted by the fact that the Treasury at this time held a large quantity of gold, principally on behalf of the Australian Notes Account, at that time only just inaugurated. Up to 30th June, 1914, the money required for loan expenditure was taken mainly from this account at 3½ per cent., and inscribed stock of an equivalent value created. Since the outbreak of war the creation of inscribed stock has ceased, the money required for the Loan Fund being obtained by the issue of Treasury Bills. The relation between the magnitude of the Loan Fund and the expenditure therefrom is shewn for the last six years in the following table:—

#### SECURITIES CONSTITUTING COMMONWEALTH LOAN FUND AND EXPENDITURE THEREFROM, 1912 to 1917.

Year ended 30th June.	Commonwealth Loan Fund.			Expenditure in year ended 30th June.	Total Expenditure up to year ended 30th June.	Unexpended Balance.
	Inscribed Stock.	Treasury Bills.	Total Receipts.			
	£	£	£	£	£	£
1912 ...	700,000	...	700,000	660,475	660,475	39,525
1913 ...	2,000,000	...	2,000,000	1,185,027	1,848,502	151,498
1914 ...	4,100,000	...	4,100,000	2,155,261	4,003,763	96,237
1915 ...	4,580,000	1,578,202	6,158,202	2,154,439	6,158,202	...
1916 ...	4,580,000	4,437,543	9,017,543	2,859,341	9,017,543	...
1917 ...	4,580,000	4,437,543	9,017,543	...	9,017,543	...

In addition to the securities enumerated in the preceding table, £371,118 worth of Treasury Bills were issued in 1914-15 in aid of Revenue. They were repaid by the Consolidated Revenue Fund in 1916-17.

The preceding table gives the total expenditure for five years. The details of the expenditure are as follows:—

## COMMONWEALTH LOAN EXPENDITURE, DETAILS, 1912-16. (b)

Particulars.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
	£	£	£	£	£
Railways Construction—Trans-Australian Railway ...	...	595,614	1,346,040	1,670,459	1,646,953
Northern Territory... ..	...	...	126,529	94,392	126,592
Loan Redemption—Oodnadatta Railway ...	...	168,954	135,627	15,078	923
Northern Territory... ..	226,000	71,945	...	...	400,000
Payment to South Australia on account of Oodnadatta Railway ...	34,475	...	...	...	...
Papua—Railways and wharves ...	...	...	685	13,042	12,829
Posts and Telegraphs—Purchase of land ...	...	...	42,588	84,500	92,712
Construction of conduits ...	...	...	258,407	178,142	271,211
Acquisition of Land—London (a) ...	400,000	19,784	64,897	19,274	113,744
Perth, Western Australia ...	...	152,205	...	...	...
Federal Territory ...	...	179,525	180,488	36,770	127,537
Defence machinery, etc.; Dockyards, Cockatoo Island ...	...	...	...	42,782	66,840
<b>Total ... ..</b>	<b>660,475</b>	<b>1,188,027</b>	<b>2,155,261</b>	<b>2,154,439</b>	<b>2,859,341</b>

(a) Including cost of erection of buildings. (b) There were no transactions in this Fund for 1916-17, except the cancelling of £371,118 Treasury Bills already referred to.

3. **Properties Transferred from States.**—At the time of Federation, when the Commonwealth undertook control of a great many departments which had previously been administered by the States, a great deal of property was handed over to the Commonwealth Government. This consisted mainly of Post Offices, Customs Houses, Defence works, and other buildings necessary to the effective working of the transferred departments. In the early days of the "Braddon Clause," when the Federal Government was spending less than its statutory proportion of the Customs revenue, the question of suitable compensation to the States did not become acute; but, when the "Braddon Clause" was replaced by another arrangement between Commonwealth and States, much less favourable to the latter, the time had evidently come to put matters on a more definite footing. In the Commonwealth accounts of the last five years, certain amounts (independent entirely of the subsidy) have been paid to the States as "Interest on Transferred Properties." These amounts have been substantially based upon a valuation made by the old Home Affairs Department, with the following result:—

## ORIGINAL VALUATION OF TRANSFERRED PROPERTIES.

State.	Department.				Total.
	Postmaster-General.	Defence.	Trade and Customs.	Home Affairs.	
	£	£	£	£	£
New South Wales ...	2,337,316	1,182,003	154,009	1,320	3,674,648
Victoria ...	1,332,862	805,389	190,657	1,266	2,330,174
Queensland ...	925,628	386,802	202,082	7,356	1,521,868
South Australia ...	842,281	161,140	28,486	815	1,032,722
Western Australia ...	600,895	64,842	37,714	835	704,286
Tasmania ...	214,906	121,490	48,212	143	384,751
<b>Commonwealth ...</b>	<b>6,253,888</b>	<b>2,721,666</b>	<b>661,160</b>	<b>11,735</b>	<b>9,648,449</b>

Since the valuation some transfers and retransfers have been made. The estimated value of the transferred properties for the last five years is given in the table in sub-section 7 hereinafter.

4. **War Loan from the Imperial Government.**—On the outbreak of the European war in 1914, the Commonwealth Government contracted a loan from the Imperial Government for the purpose of financing the large military expenditure which was seen to be

inevitable. At first, the arrangement was that the Imperial Government should advance the sum of £18,000,000 in twelve monthly instalments of £1,500,000 each. It was soon found, however, that this would be insufficient, and consequently the Imperial Government made a fresh advance of £6,500,000, also to be paid in monthly instalments. A third loan of £25,000,000 was subsequently contracted for, of which £12,000,000 was received by 30th June, 1916, and £11,000,000 in 1916-17. The total capital debt thus created up to 30th June, 1917, is set out in the following table:—

Authority.	Imperial Loans—Capital Debt created up to 30th June, 1917.			
	Issues, 3½% at 95.	Issues, 4½% at 99.	Issues, 5% at par.	Total.
	£	£	£	£
War Loan Act 1914—£18,000,000 ...	1,263,158	15,454,545	1,500,000	18,217,703
War Loan Act No. 2 1915—£6,500,000 ...	...	5,656,566	900,000	6,556,566
War Loan Act (United Kingdom) No. 2 1916—£25,000,000 ...	...	...	23,000,000	23,000,000
	1,263,158	21,111,111	25,400,000	47,774,269

Interest is paid on these loans in London as at 31st March and 30th September in each year. The amounts paid in the three financial years comprising the currency of the loans are as follows:—1914-15, £36,489; 1915-16, £843,893; and 1916-17, £2,082,258.

5. **Flotation of War Loans in Australia.**—In addition to the advances from the Imperial Government, the Commonwealth Government has raised large amounts of money for the prosecution of the war, by direct application to the investing public of Australia. Acts No. 21 and No. 50 of 1915 authorised the Commonwealth to make application for £20,000,000 and £18,000,000 respectively, and in pursuance of these a loan of £5,000,000 was placed upon the market late in 1915, and a further amount of £10,000,000 early in 1916. These issues—unprecedented in Australian finance—were entirely successful, the latter being subscribed twice over, and the former more than two and a-half times. Both loans were issued at par, bore interest at 4½ per cent., and are redeemable on 15th December, 1925. The expenses included a commission of two shillings per cent. to the Commonwealth Bank, commission to brokers at ½ per cent., and miscellaneous items such as printing. The total cost of flotation, however, was most moderate, amounting only to £85,041, or less than five shillings per cent. of the amount subscribed. The two Acts already mentioned were succeeded by a third, which authorised the Commonwealth Parliament to raise a further sum of £50,000,000. In pursuance of this a third issue was placed upon the market, closing on 1st August, 1916, and subsequently a fourth issue, closing on 8th February, 1917. These issues differ in no material respect from the first two, and the full details for the entire four are appended in the following table:—

#### PARTICULARS OF LOCAL AUSTRALIAN WAR LOANS, 1915-17.

Heading.	1st Issue.	2nd Issue.	3rd Issue.	4th Issue.	Total.
Number of subscribers—	No.	No.	No.	No.	No.
For Inscribed Stock ...	8,603	12,450	13,660	13,657	48,370
For Treasury Bonds ...	10,145	16,495	88,382	53,303	168,325
Total ...	18,748	28,945	102,042	66,960	216,695
Amount subscribed—	£	£	£	£	£
For Inscribed Stock ...	9,581,120	16,271,710	15,417,650	14,565,190	55,835,670
For Treasury Bonds ...	3,808,320	5,383,970	8,169,770	6,855,860	24,217,940
Total ...	13,389,440	21,655,680	23,587,420	21,421,070	80,053,610
Accrued interest ...	221,502	324,170	326,881	252,399	1,124,952
Expenses of flotation ...	34,659	50,382	50,688	45,900	181,629
Total deductions ...	256,161	374,552	377,569	298,299	1,306,581
Net proceeds of loan ...	13,133,279	21,281,128	23,209,851	21,122,771	78,747,029

It will be seen that whilst the expenses of flotation are small, the accrued interest is by no means negligible. Owing mainly to this, the net proceeds to the Federal Government only amount to about 98½ per cent., consequently, when allowance is made for redemption at par, the Government pays about £4 14s. per cent. interest, instead of the nominal 4½ per cent. In view, however, of the advancing rate of interest, this cannot be called excessive.

A fifth Commonwealth War Loan, floated in November, 1917, realised £20,281,160, and a sixth loan, floated in April, 1918, realised £43,510,740. Full details of these are not yet available. A seventh loan of £40,000,000 is now being asked for at 5 per cent., subject to Commonwealth Income Tax.

**6. Australian Notes.**—In connection with the subject of the Public Debt a further reference to the issue of Australian notes will be of interest. The gold held in reserve in the Treasury has varied from rather more than 30 per cent. to rather less than 50 per cent. of the outstanding notes. Consequently a large proportion of the notes—all of which are payable on demand—is permanently uncovered by gold, and this proportion constitutes an undoubted part of the Public Debt. The item is constantly fluctuating in amount, and financially resembles a bank overdraft on which no interest is payable. Whilst, however, attention has been drawn to this on the ground of principle, no reference has been made to the uncovered notes in the tables summarising the Public Debt which appear in sub-section 7 hereafter. As already stated, on 30th June, 1917 the value of the notes issued and unredeemed was £47,201,362, against which there was a gold reserve of £15,418,391, leaving an uncovered amount of £31,782,971. In this connection reference may be made to the table on page 779.

**7. Total Commonwealth Public Debt.**—Separate consideration has already been given to the items composing the Public Debt. The table appended to this sub-section shews the entire debt of the Commonwealth (apart from the States) at yearly intervals since 1913. The liability on account of the note issue is excluded, for reasons already given, but the liability on account of the transferred properties has been included for the entire period. The Commonwealth Public Accounts first took cognizance of this item in 1913, although the debt had been incurred much earlier.

**PUBLIC DEBT OF THE COMMONWEALTH AS AT 30th JUNE, 1913 to 1917.**

Details.	1913.	1914.	1915.	1916.	1917.
Balance of loans taken over from South Australia—	£	£	£	£	£
(a) On account of Northern Territory ...	3,359,891	3,359,891	3,359,891	2,778,266	2,772,516
(b) On account of Oodnadatta railway ...	2,071,058	1,935,431	1,920,354	1,896,132	1,759,003
Value of properties transferred by States ...	9,648,449	9,787,011	10,777,161	10,781,797	10,789,739
Amount of Commonwealth Loan Fund—					
(a) Inscribed Stock ...	2,000,000	4,100,000	4,580,000	4,580,000	4,580,000
(b) Treasury Bills ...	...	...	1,949,319	4,808,661	4,437,543
War Loan from British Government ...	...	...	14,842,105	36,774,269	47,774,269
Commonwealth Internal Loans ...	...	...	...	34,965,430	80,242,510
Accrued Deferred Pay, A.I.F. ...	...	...	...	4,759,730	9,373,977
Total ...	17,079,398	19,182,333	37,428,830	101,344,285	169,229,557
					(a)
Commonwealth Debt per capita	£3 11 2	£3 17 11	£7 11 6	£20 13 5	£34 11 3

(a) Including £7,500,000 raised for the States.



It will be noticed that the amount of the Commonwealth Internal Loans does not quite agree with the totals of the first four issues in the table on page 783. This is owing to the fact that stock to a considerable amount has been presented as payment of Estate Duty, and cancelled, the payments being accepted in accordance with the provisions of section 5 of the Commonwealth Inscribed Stock Act 1915. The amount of £79,506,510 is the balance of the first four issues. To this must be added £736,000 raised by the sale of War Savings Certificates.

**8. Place of Flotation.**—The loans taken over from South Australia, which constituted the first portion of the Federal Public Debt, included both London and Australian securities. The presence in the Treasury of a large holding of gold, and the moderate rate of interest ruling on gilt-edged securities, made the conditions in 1911, and for some little time afterwards, very favourable for the flotation of local loans. London securities were redeemed as they fell due, and replaced by the 3½ per cent. stock of the Loan Fund. Consequently, up to 1914 the amount of the securities repayable in London fell steadily, and the amount repayable in Australia rose rapidly. In 1915, however, the military loan from the Imperial Government caused a sharp rise in the amount of the securities repayable in London, which was maintained in the two following years. This was, however, more than offset by the flotation of the local war loans. Appended is a table shewing particulars of the loans of the Commonwealth for seven financial years which have been floated in London and Australia respectively. A separate column is reserved for the cost of the transferred properties, which, for obvious reasons, it is impossible to allocate:—

**COMMONWEALTH PUBLIC DEBT.—LONDON AND AUSTRALIAN FLOTATIONS, 1911-17.**

Year ended 30th June—	Payable in—		Value of Transferred Properties.	Total.
	London.	Australia.		
	£	£	£	£
1911 ... ..	3,815,502	2,116,820	9,648,449	15,580,771
1912 ... ..	3,815,502	2,556,345	9,648,449	16,020,296
1913 ... ..	3,646,548	3,784,401	9,648,449	17,079,398
1914 ... ..	3,510,921	5,884,401	9,787,011	19,182,333
1915 ... ..	18,337,949	8,313,720	10,777,161	37,428,830
1916 ... ..	40,063,440	50,499,048	10,781,797	101,344,285
1917 ... ..	58,426,312	100,013,506	10,789,739	169,229,557

**9. Rates of Interest.**—When the first debt was taken over from South Australia it consisted in the main of a mass of securities varying from 3 per cent. to 4 per cent., the average rate of interest for the first year being £3 12s. 4d. For the first three years the increase in the debt was due almost entirely to the expansion of the 3½ per cent. stock of the Loan Fund, and as a consequence the average rate of interest fell steadily, until on 30th June, 1914, it stood at £3 11s. 10d. Then came the loans for military purposes, and the fall in the average rate will in future be checked, since there is not likely to be any further borrowing for some time at a rate of less than 4½ per cent. In fact, the influence of the heavy borrowing of 1915-16 at high rates is already reflected in the average rate of interest, which rose during that year by more than ½ per cent. It is notoriously difficult to forecast the future of the rate of interest, but the influence of the large Imperial War Loans on gilt-edged securities has been so far-reaching, that in all probability during the next decade the average rate of interest on the Federal Public Debt will rise continuously.

The accompanying table gives full particulars concerning the interest for the five financial years ended 30th June, 1917.

## RATES OF INTEREST ON COMMONWEALTH PUBLIC DEBT, 1913 to 1917.

Rates of Interest.	Year ended 30th June—				
	1913.	1914.	1915.	1916.	1917.
%	£	£	£	£	£
Not bearing interest ...	...	...	...	4,759,730	9,373,977
3 ...	35,612	35,612	35,612	35,063	35,063
3½ ...	11,820,206	14,058,768	30,371,023	16,796,712	16,804,654
£3/12/3 ...	884,031	748,404	748,404	720,411	720,411
3¾ ...	1,798,383	1,798,383	1,798,383	1,399,758	1,394,008
4 ...	2,541,166	2,541,166	4,475,408	7,156,070	6,647,823
4½ ...	...	...	...	56,076,541	101,353,621
5 ...	...	...	...	14,400,000	25,400,000
5½ ...	...	...	...	...	4,000,000
5¾ ...	...	...	...	...	3,500,000
Total ...	17,079,398	19,182,333	37,428,830	101,344,285	169,229,557
Average rate of interest	£3 12 1	£3 11 10	£3 11 6	£4 2 10	£4 4 8

10. **Dates of Maturity.**—A table is appended giving the dates of maturity of the several portions of the Commonwealth debt. The Commonwealth Government has refrained from issuing interminable stock, although as regards about three-tenths of the debt no definite date of maturity had been assigned on 30th June, 1917. It will be noticed that nearly £80,000,000 falls due in one year—1925, the bulk of this being represented by the balance of the first four internal loans.

DUE DATES OF THE COMMONWEALTH PUBLIC DEBT OUTSTANDING ON  
30th JUNE, 1917.

Due Dates.	Amounts.	Due Dates.	Amounts.	Due Dates.	Amounts.
	£		£		£
1917 ...	204,511	1927 ...	3,504,645	1972 ...	4,580,000
1918 ...	134,897	1928 ...	1,263,158	Indeter-	6,047
1920 ...	176,714	1930 ...	750,950	minate	
1921 ...	47,100	1935 ...	83,051	Indefinite	51,484,885
1922 ...	4,000,125	1936 ...	583,769		
1924 ...	1,553,952	1939 ...	161,531		
1925 ...	79,516,310	1945 ...	21,111,111	Total ...	169,229,557
1926 ...	66,801				

## SECTION XX.

## STATE FINANCE.

## § 1. General.

**1. Functions of State Governments.**—In any comparison of the finances of the several States due recognition must be made of the actual functions assumed by the respective Governments, and also of the local conditions and requirements in each case. Direct comparisons of public expenditure are thus rendered difficult, owing to the fact that functions which in one State are assumed by the Central Government are in another State relegated to local governing bodies, and further by the fact that costly developmental work may, under certain conditions, be not only economically justifiable, but may be an essential of progress, whilst parsimonious expenditure may be a serious economic blunder. A large expenditure may, therefore, be an indication either of gross extravagance and bad economy on the one hand or healthy and vigorous progress and good economy on the other.

Similarly, as regards revenue, imposts which in some States are levied by the Central Government are in others considered as matters to be dealt with locally. Under these circumstances care is needed in instituting comparisons between the several States, and the particulars contained in this section should be read in connection with those contained in the section dealing with Local Government. It should also be noted that in many ways the budgets of the Australian Governments differ materially from those of most European countries, owing to the inclusion therein of the revenue and expenditure of departments concerned in rendering public services, such for instance as railways, tramways, water supply, etc., which, in the other countries referred to, are often left to private enterprise.

**2. Accounts of State Governments.**—The various financial transactions of the States are in each case concerned with one or other of three Funds—the “Consolidated Revenue Fund,” the “Trust Funds,” and the “Loan Funds.” All revenue collected by the State is placed to the credit of its Consolidated Revenue Fund, from which payments are made under the authority of an Annual Appropriation Act passed by the Legislature, or by a permanent appropriation under a special Act. The hypothecation of the revenue from a specific tax to the payment for some special service is not practised in Australia, all statutory appropriations ranking on an equality as charges on the Consolidated Revenue Fund. The Trust Funds comprise all moneys held in trust by the Government, and include such items as savings banks funds, sinking funds, insurance companies’ deposits, etc. The Loan Funds are credited with all loan moneys raised by the State, and debited with the expenditure therefrom for public works or other purposes.

**3. Inter-relation of Commonwealth and State Finance.**—The principal alteration in State finance, brought about by Federation, has been that the States have transferred to the Commonwealth the large revenue received by the Customs and Postal Departments, and have been relieved of the expenditure connected with these and the Defence Departments, while, on the other hand, a new item of State revenue has been introduced, viz., the payment to the States of a Commonwealth subsidy. Provision for the taking over by the Commonwealth of certain of the public debts of the States is made in section 105 of the Constitution, and a proposed law extending this provision to the whole of the State indebtedness, which passed both Houses of the Federal Legislature by

the statutory majority, was submitted to a referendum at the election in April, 1910, and received the requisite endorsement by the electorate. No action has as yet been taken, although the subject has, on more than one occasion, been under discussion.

## § 2. State Consolidated Revenue Funds.

### (A) Receipts.

#### 1. Sources of Revenue.—The principal sources of State revenue are:—

- (a) Taxation.
- (b) The public works and services controlled by the State Governments.
- (c) Sale of and rental from Crown lands.
- (d) The Commonwealth subsidy.
- (e) Miscellaneous sources, comprising fines, fees, interest, etc.

Of these sources, that yielding the largest revenue for the States as a whole is the group of public works and services, the principal contributor being the Government railways and tramways. Next in magnitude comes Taxation, followed in order by the Commonwealth Subsidy and Land Revenue..

2. Amount Collected.—The following table furnishes particulars of the total amount of consolidated revenue received by the several States during the ten years 1907-8 to 1916-17:—

STATE REVENUE, 1907-8 to 1916-17.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	£	£	£	£	£	£	£
1907-8 ...	13,960,763	8,314,480	4,488,398	3,722,090	3,376,641	1,005,274	34,867,646
1908-9 ...	13,646,126	8,247,684	4,769,172	3,591,260	3,268,993	934,405	34,457,640
1909-10	14,540,073	8,597,992	5,119,254	4,032,891	3,657,670	1,008,932	36,956,812
1910-11	13,839,139	9,204,503	5,320,008	4,181,472	3,850,439	970,092	37,365,653
1911-12	15,776,816	10,009,796	5,989,347	4,450,739	3,966,673	1,084,663	41,278,034
1912-13	16,057,298	10,287,285	6,378,213	4,506,698	4,596,659	1,206,292	43,032,445
1913-14	18,298,625	10,730,961	6,973,259	4,822,766	5,205,343	1,238,085	47,269,039
1914-15	18,928,551	10,529,017	7,202,658	3,973,310	5,140,725	1,244,095	47,018,356
1915-16	19,629,442	11,470,875	7,706,365	4,356,967	5,356,978	1,376,493	49,897,120
1916-17	20,537,835	11,813,879	7,880,893	4,874,603	4,577,007	1,369,368	51,053,585

The figures given in this table relate in each instance to the financial year ended 30th June.

During the nine years from 30th June, 1908, to 30th June, 1917, the aggregate revenues of the States increased by no less a sum than £16,185,939, or about 46 per cent. Increases were in evidence in all the States, the largest being that of £6,577,072 in New South Wales. This general advance is the more notable since, during recent years, a much smaller amount has been received from the Commonwealth, in the way of subsidy, than was the case up to 1910.

It will be noticed that in all the States, except Queensland, the revenue for 1908-9 was lower than that of the preceding year, largely owing to the fact that the revenue for 1907-8 was swelled by the payment of Customs duties in anticipation of, or in consequence of, the new tariff imposed on 8th August, 1907.

3. Revenue per Head.—Details concerning the revenue per head of population, collected in the several States of the Commonwealth during the ten years 1907-8 to 1916-17, are furnished in the table given hereunder. It will be seen that throughout the period Western Australia has collected by far the largest amount per head, and that Tasmania has collected the least.

## STATE REVENUE PER HEAD OF POPULATION, 1907-8 to 1916-17.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1907-8 ...	8 18 10	6 14 11	8 4 6	9 17 3	13 5 9	5 6 0	8 7 7
1908-9 ...	8 12 4	6 11 11	8 11 3	9 4 5	12 11 9	4 17 6	8 2 10
1909-10 ...	9 0 2	6 14 8	8 17 2	10 3 6	13 15 4	5 4 6	8 10 11
1910-11 ...	8 8 5	7 1 5	8 17 8	10 3 11	13 18 2	5 0 1	8 8 11
1911-12 ...	9 8 5	7 6 11	9 12 6	10 12 10	13 9 8	5 12 1	9 0 8
1912-13 ...	9 0 6	7 9 0	10 0 5	10 9 6	15 0 3	6 2 4	9 1 10
1913-14 ...	9 19 10	7 12 0	10 11 3	10 19 2	16 4 8	6 2 9	9 14 1
1914-15 ...	10 3 1	7 7 2	10 12 10	8 19 11	15 18 3	6 3 6	9 10 3
1915-16 ...	10 10 1	8 1 10	11 6 6	9 18 2	16 16 11	6 16 11	10 2 4
1916-17 ...	11 1 0	8 8 9	11 15 4	11 5 9	14 16 5	6 17 0	10 9 5

In all the States, during the period, there has been a marked increase in the State revenue collections per head, the most noticeable advance being £3 10s. 10d. in the case of Queensland. Western Australia showed a falling-off in 1908-9, but there was a recovery in 1909-10, and for 1916-17 the revenue per head in that State exceeded the Commonwealth average by about 42 per cent. South Australia showed a marked decline in 1914-15, due largely to a diminished revenue from public works and services, but has since recovered.

4. Details for 1916-17.—Classifying the revenue of the several States in the manner indicated in § 2 (A) 1 above, particulars for the year 1916-17 are as follows:—

## DETAILS OF STATE REVENUE, 1916-17.

Particulars.	N.S.W.	Victoria.	Q'land.	S.A.	W.A.	Tas.	All States.
	£	£	£	£	£	£	£
Taxation ...	3,629,404	2,237,016	1,564,044	726,645	402,336	438,632	8,998,077
Public Works & Services ...	12,293,664	6,471,981	3,987,757	2,895,557	3,250,056	411,878	29,310,893
Land ...	1,747,009	302,031	962,953	264,777	330,148	91,743	3,698,661
Commonwealth Subsidy ...	2,286,913	1,722,409	820,604	531,340	569,982	(a)336,004	6,267,252
Miscellaneous ...	580,845	1,080,442	545,535	456,284	24,485	91,111	2,778,702
Total ...	20,537,835	11,813,879	7,880,893	4,874,603	4,577,007	1,369,368	51,053,585

(a) Including special grant of £90,000.

It will be noted that the amounts returned under the heading "Commonwealth subsidy" do not always agree with those given in the chapter on Commonwealth Finance, page 777. This arises from the fact that the State figures shew the amount for which credit was taken by the State during the financial year 1916-17, whilst the Commonwealth figures shew the amounts paid to State Treasurers on account of that financial year.

5. Revenue per Head, 1916-17.—Particulars concerning the revenue per head of population in each State derived from the several sources enumerated in the preceding paragraph are given hereunder:—

## STATE REVENUE FROM VARIOUS SOURCES PER HEAD OF POPULATION, 1916-17

Particulars.	N.S.W.	Victoria.	Qld.	S. Aust.	W. Aust.	Tas.	C'wealth.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Taxation ...	1 19 1	1 12 0	2 6 9	1 13 8	1 6 1	2 3 11	1 16 11
Public Works & Services ...	6 12 3	4 12 6	5 19 1	6 14 1	10 10 6	2 1 3	6 0 3
Land ...	0 18 10	0 4 3	1 8 9	0 12 3	1 1 5	0 9 2	0 15 2
Commonwealth Subsidy ...	1 4 7	1 4 7	1 4 6	1 4 7	1 16 11	1 13 7	1 5 8
Miscellaneous ...	0 6 3	0 15 5	0 16 3	1 1 2	0 1 6	0 9 1	0 11 5
Total ...	11 1 0	8 8 9	11 15 4	11 5 9	14 16 5	6 17 0	10 9 5

The magnitude of the revenue per head from public works and services in the case of Western Australia is mainly due to the fact that the number of miles of railway in that State is large compared with the population, while the revenue-earning power of the railways is also high.

**6. Relative Importance of Sources of Revenue.**—The following table furnishes an indication of the relative importance of the different sources of revenue in the several States, the figures given being the percentage which each item of revenue bore to the total for the State for the year 1916-17:—

PERCENTAGE OF ITEMS ON TOTAL STATE REVENUE, 1916-17.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wlth.
	%	%	%	%	%	%	%
Taxation ... ..	17.67	18.93	19.85	14.91	8.79	32.03	17.62
Public Works and Services ...	59.86	54.78	50.60	59.40	71.01	30.08	57.41
Land ... ..	8.51	2.56	12.22	5.43	7.21	6.70	7.25
Commonwealth Subsidy ...	11.13	14.58	10.41	10.90	12.45	24.54	12.28
Miscellaneous ... ..	2.83	9.15	6.92	9.36	0.54	6.65	5.44
<b>Total ... ..</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>

**7. State Taxation.**—(a) *Details, 1916-17.* Prior to the inauguration of Federation the principal source of revenue from taxation was the imposition of duties of Customs and Excise. At the present time the most productive forms of State taxation are the income tax, which is now imposed in all the States (Western Australia, the last of the States to adopt this method of taxation, having passed the necessary legislation during the Parliamentary session of 1907), and probate and succession duties. For 1916-17 stamp duties occupied third place. In addition to these a State land tax is now collected in all the States, license fees of various kinds are also collected in all the States, while a dividend tax is levied in Western Australia. The total revenue from taxation collected by the States during the year 1916-17 was £8,998,077, details of which are set forth in the table given hereunder:—

STATE REVENUE FROM TAXATION, 1916-17.

Taxation.	N.S.W.	Victoria.	Q'land.	S. Aust.	W.A.	Tas.	All States.
	£	£	£	£	£	£	£
Probate and succession duties	826,769	546,400	146,077	134,620	40,963	37,310	1,732,139
Other stamp duties ... ..	550,211	376,196	175,186	145,079	67,035	77,636	1,391,343
Land tax ... ..	3,215	369,486	363,535	139,372	42,431	83,595	1,000,634
Income tax ... ..	1,973,477	766,746	756,292	264,946	(a) 196,221	216,278	4,173,960
Licenses ... ..	154,806	165,337	86,324	26,323	40,911	14,612	488,313
Other taxation ... ..	120,926	12,851	37,630	16,305	14,775	9,201	211,688
<b>Total ... ..</b>	<b>3,629,404</b>	<b>2,237,016</b>	<b>1,564,044</b>	<b>726,645</b>	<b>402,336</b>	<b>438,632</b>	<b>8,998,077</b>

(a) Includes 105,554 dividend tax.

(b) *Summary, 1907-8 to 1916-17.* The total amount raised by means of taxation by the several State Governments during the ten years 1907-8 to 1916-17 is given in the following table:—

## STATE REVENUE FROM TAXATION, 1907-8 to 1916-17.

Year.	New South Wales.	Victoria.	Queensland.	S. Australia.	W. Aust.	Tasmania.	All States.
	£	£	£	£	£	£	£
1907-8	1,077,534	977,620	525,540	477,637	277,463	265,656	3,601,450
1908-9	907,249	1,072,228	535,194	450,250	296,599	250,835	3,512,355
1909-10	1,223,521	1,088,353	584,997	481,003	336,396	303,390	4,017,660
1910-11	1,027,519	1,344,573	667,196	545,986	325,246	284,965	4,195,485
1911-12	1,885,653	1,501,696	787,577	551,994	352,314	340,434	5,419,668
1912-13	1,405,360	1,577,878	806,677	536,401	393,615	345,282	5,065,213
1913-14	2,330,005	1,598,876	887,798	730,640	386,104	371,413	6,304,836
1914-15	2,955,670	1,762,041	954,457	588,690	371,960	367,577	7,000,395
1915-16	3,117,221	2,074,839	1,455,358	701,511	407,997	384,820	8,141,746
1916-17	3,629,404	2,237,016	1,564,044	726,645	402,336	438,632	8,998,077

During the period between 30th June, 1908, and 30th June, 1917, the aggregate State revenue from taxation increased by about 150 per cent., the increase varying considerably in the several States. The remarkable increase of the last four years in New South Wales is due principally to the broadening of the basis of the State Income Tax, and increased receipts from Stamp Duties. Queensland collected a Land Tax for the first time in 1915-16. The total increase in State taxation for the year 1916-17 amounted to £856,331, or about 10½ per cent.

The revenue from State taxation per head of population, collected in the several States during each of the years 1907-8 to 1916-17, was as follows:—

## STATE TAXATION PER HEAD, 1907-8 to 1916-17.

Year.	New South Wales.	Victoria.	Queensland.	S. Australia.	W. Aust.	Tasmania.	C'wealth.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1907-8	0 13 9	0 15 10	0 19 3	1 5 3	1 1 10	1 8 0	0 17 3
1908-9	0 11 6	0 17 2	0 19 2	1 3 1	1 2 10	1 6 2	0 16 7
1909-10	0 15 2	0 17 0	1 0 3	1 4 3	1 5 4	1 11 5	0 18 7
1910-11	0 12 6	1 0 8	1 2 3	1 6 8	1 3 6	1 9 5	0 19 0
1911-12	1 2 6	1 2 1	1 5 4	1 6 2	1 3 11	1 15 2	1 3 9
1912-13	0 15 10	1 2 10	1 5 4	1 4 9	1 5 8	1 15 0	1 1 5
1913-14	1 5 5	1 2 8	1 6 11	1 13 2	1 4 1	1 16 10	1 5 11
1914-15	1 11 8	1 4 8	1 8 2	1 6 8	1 3 0	1 16 6	1 8 4
1915-16	1 13 4	1 9 3	2 2 9	1 11 11	1 5 8	1 18 3	1 13 0
1916-17	1 19 1	1 12 0	2 6 9	1 13 8	1 6 1	2 3 11	1 16 11

Taking the States as a whole, the State taxation increased by nineteen shillings and eightpence per head during the period from 1907-8 to 1916-17, the most marked increase occurring in the case of Queensland. Most of the advance took place in the last two years and was chiefly due to the Land Tax.

8. **Commonwealth and State Taxation.**—For the purpose of obtaining an accurate view of the extent of taxation imposed on the people of the Commonwealth by the central governing authorities, it is necessary to add together the Commonwealth and State collections. This has been done in the table given hereunder, which contains particulars

concerning the total taxation for each of the years 1912-13 to 1916-17, as well as the amount per head of population:—

### COMMONWEALTH AND STATE TAXATION, 1912-13 to 1916-17.

Particulars.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£
Commonwealth taxation ...	17,117,828	16,587,906	16,870,596	23,533,529	24,523,013
State taxation ...	5,065,213	6,304,836	7,000,395	8,141,746	8,998,077
Total ...	22,183,041	22,892,742	23,870,991	31,675,275	33,521,090
Taxation per head ...	£4 13 9	£4 14 0	£4 16 7	£6 8 5	£6 17 6

Whilst the Commonwealth taxation increased during the period by £7,405,185, the State taxation advanced by £3,932,864, the aggregate increase being £11,338,049. The amount per capita of total taxation remained fairly constant from 1912-13 up to 1914-15, at an average of about £4 15s. In the last two years, however, it reached an abnormally high amount, owing to the imposition of fresh direct taxation by the Commonwealth Government. The large increase in Commonwealth taxation in recent years is mainly due to the appearance of the Federal Land Tax, Federal Income Tax, and Federal Succession Duties.

9. **Public Works and Services.**—A very large proportion of the revenue of all the States of the Commonwealth is made up of the receipts from the various public works and services under the control of the several Governments. The principal of these are railways and tramways, harbour works, and water supply and sewerage, while in addition, State batteries for the treatment of auriferous ores exist in Western Australia, and various minor revenue-producing services are rendered by the Governments of all the States. For the year 1916-17 the aggregate revenue from these sources totalled £29,310,893, or nearly 57 per cent. of the revenue from all sources. Details of revenue from public works and services for the year 1916-17 are as follows:—

### STATE REVENUE FROM PUBLIC WORKS AND SERVICES, 1916-17.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	£	£	£	£	£	£	£
Railways and Tramways ...	10,390,602	5,882,968	3,834,436	2,294,368	2,004,148	340,173	24,746,695
Harbour Services ...	595,880	92,937	39,486	162,850	124,739	...	1,015,892
Public Batteries ...	...	1,023	...	...	61,200	...	62,223
Water Supply and Sewerage ...	965,761	(a) 230,426	...	215,207	404,738	...	1,816,132
Other Public Services ...	341,421	264,627	113,835	223,132	655,231	71,705	1,669,951
Total ...	12,293,664	6,471,981	3,987,757	2,895,557	3,250,056	411,878	29,310,893

(a) Water supply only.

10. **Land Revenue.**—The revenue derived by the States from the sale and rental of Crown lands has, with few exceptions, been treated from the earliest times as forming part of their respective Consolidated Revenue Funds, and has been applied to meet ordinary current expenses. Where the rentals received are for lands held for pastoral or for residential purposes, such application of the revenue appears perfectly justifiable. On the other hand, where the rentals are those of mineral and timber lands, and in all cases of sales of lands, such a proceeding is essentially a disposal of capital in order to defray



current expenses and as a matter of financial procedure is open to criticism. In the following table particulars of revenue derived from sales and rental of Crown lands are given for the year 1916-17:—

## STATE LAND REVENUE, 1916-17.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
	£	£	£	£	£	£	£
Sales ...	977,884	168,193	262,450	109,605	282,223	60,399	1,860,754
Rentals ...	769,125	138,838	700,503	155,172	47,925	31,344	1,837,907
Total ...	1,747,009	302,031	962,953	264,777	330,148	91,743	3,698,661

**11. Commonwealth Subsidy.**—The payments to the States of Commonwealth subsidy represent in each instance a considerable proportion of the States' revenue, and for the year 1916-17 aggregated £6,267,252. This represents a great decline from the amounts received up to 1910, owing to the new system of allotting the subsidy. The percentage which the subsidy received by each State for 1916-17 was of the total revenue of that State is shewn in the following table:—

## COMMONWEALTH SUBSIDY PAID TO STATES DURING 1916-17.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	£	£	£	£	£	£	£
Commonwealth subsidy ...	2,286,913	1,722,409	820,604	531,340	569,982	(a) 336,004	6,267,252
Total revenue ...	20,537,835	11,813,879	7,880,893	4,874,603	4,577,007	1,369,368	51,053,585
Percentage of subsidy on revenue ...	% 11.13	% 14.58	% 10.41	% 10.90	% 12.45	% 24.54	% 12.28

(a) Including special grant of £90,000.

The amount of subsidy here shewn is that for which the several States took credit during the year 1916-17. (See also page 789.)

**12. Miscellaneous Items of Revenue.**—In addition to the foregoing sources of revenue there are in each State several miscellaneous ones, including such items as interest, fines, fees, etc., which for the year 1916-17 aggregated £2,778,702.

## (B) Disbursements.

**1. Heads of Expenditure.**—The principal heads of State expenditure from Consolidated Revenue Funds are:—

- (a) Interest and sinking funds in connection with public debt.
- (b) Working expenses of railways and tramways.
- (c) Justice.
- (d) Police.
- (e) Penal establishments.
- (f) Education.
- (g) Medical and charitable expenditure.
- (h) All other expenditure.

Of these items that of working expenses of railways and tramways was the most important, and for the year 1916-17 represented about 35 per cent. of the aggregate expenditure from the Consolidated Revenue Fund. Next in order for that year was the item of interest and sinking fund in connection with the public debt, then education, medical and charitable expenditure, and police in the order named.

**2. Total Expenditure.**—The total expenditure from Consolidated Revenue Funds in the several States during each of the years 1907-8 to 1916-17 is furnished in the table given hereunder:—

**STATE EXPENDITURE, CONSOLIDATED REVENUE FUNDS, 1907-8 to 1916-17.**

Year.	N.S. Wales.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	£	£	£	£	£	£	£
1907-8 ...	12,095,593	7,862,246	4,373,097	3,862,336	3,379,006	929,885	32,502,163
1908-9 ...	12,893,662	8,240,177	4,759,231	3,760,005	3,370,530	960,237	33,983,842
1909-10 ...	13,038,150	8,579,980	5,113,578	4,196,493	3,447,732	997,321	35,373,254
1910-11 ...	13,807,538	9,194,157	5,314,737	4,181,472	3,734,448	1,016,963	37,249,315
1911-12 ...	15,277,001	9,999,342	5,965,692	4,450,739	4,101,082	1,064,725	40,858,581
1912-13 ...	16,798,500	10,258,081	6,372,097	4,506,698	4,787,063	1,095,883	43,818,322
1913-14 ...	17,701,851	10,717,642	6,962,516	4,604,130	5,340,754	1,235,014	46,561,907
1914-15 ...	17,935,748	11,706,968	7,199,399	4,662,395	5,706,542	1,384,150	48,595,202
1915-16 ...	18,931,814	11,683,363	7,671,573	4,741,377	5,705,201	1,340,711	50,074,039
1916-17 ...	20,806,633	11,795,295	8,134,387	5,190,453	5,276,764	1,412,893	52,616,425

As in the case of the table previously given for revenue, the above figures relate to the year ended 30th June.

**3. Expenditure per Head.**—Owing to the varying conditions of the several States and the extent to which the different functions of Government are distributed therein between central and local governing authorities, the expenditure per head from Consolidated Revenue Funds differs materially in the several States, being highest in the case of Western Australia and lowest in that of Tasmania. The expenditure per head of population for each State for the years 1907-8 to 1916-17 is as follows:—

**STATE EXPENDITURE PER HEAD, 1907-8 to 1916-17.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1907-8 ...	7 14 11	6 7 6	8 0 3	10 4 8	13 5 6	4 18 1	7 16 2
1908-9 ...	8 2 10	6 11 9	8 10 10	9 13 1	12 19 7	5 0 2	8 0 7
1909-10 ...	8 1 7	6 14 4	8 17 0	10 11 9	12 19 6	5 3 3	8 3 7
1910-11 ...	8 8 0	7 1 3	8 17 5	10 3 11	13 9 9	5 4 11	8 8 4
1911-12 ...	9 2 5	7 6 9	9 11 9	10 12 10	13 18 10	5 10 1	8 18 10
1912-13 ...	9 9 0	7 8 8	10 0 3	10 9 6	15 12 9	5 11 2	9 5 2
1913-14 ...	9 13 3	7 11 10	10 10 11	10 9 3	16 13 1	6 2 6	9 11 2
1914-15 ...	9 12 8	8 3 8	10 12 7	10 11 1	17 13 4	6 17 5	9 16 8
1915-16 ...	10 2 7	8 4 10	11 5 6	10 15 8	17 18 10	6 13 4	10 3 1
1916-17 ...	11 3 11	8 8 6	12 3 0	12 0 5	17 1 9	7 1 4	10 15 10

The total expenditure per head has increased every year in the period under review, although there have been fluctuations in the individual States.

**4. Details of Expenditure for 1916-17.**—The following table furnishes for the year 1916-17 particulars as to the expenditure of the several States under each of the principal heads:—

## DETAILS OF STATE EXPENDITURE, 1916-17.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	£	£	£	£	£	£	£
Public debt (int., sink'g fund, &c.)	4,945,367	3,165,856	2,278,832	1,484,275	1,769,917	611,300	14,255,547
Rlws. & tramways (work'g exps.)	7,605,045	4,184,199	3,003,743	1,736,423	1,552,058	293,018	18,374,486
Justice ... ..	357,194	168,021	109,278	49,644	76,232	13,809	774,178
Police ... ..	602,601	361,557	315,867	126,109	120,560	47,320	1,574,014
Penal establishments ... ..	91,913	59,614	30,606	22,917	20,765	6,996	232,811
Education ... ..	1,853,049	1,160,228	656,887	352,294	358,228	131,697	4,512,383
Medical and charitable ... ..	929,218	660,710	508,146	235,061	280,432	89,799	2,703,366
All other expenditure ... ..	4,422,246	2,035,110	1,231,028	1,183,730	1,098,572	218,954	10,189,640
Total ... ..	30,806,633	11,795,295	8,134,387	5,190,453	5,276,764	1,412,893	52,616,425

5. **Expenditure per Head, 1916-17.**—The expenditure per head of population of the several States for the year 1916-17, under each of the principal items, is given hereunder:—

## STATE EXPENDITURE PER HEAD, 1916-17.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Public debt, (interest, sink- ing fund, &c.) ... ..	2 13 3	2 5 3	3 8 1	3 8 9	5 14 8	3 1 2	2 18 6
Railways and tramways (working expenses) ... ..	4 1 10	2 19 9	4 9 9	4 0 5	5 0 6	1 9 4	3 15 5
Justice ... ..	0 3 10	0 2 5	0 3 3	0 2 4	0 4 11	0 1 4	0 3 2
Police ... ..	0 6 6	0 5 2	0 9 5	0 5 10	0 7 10	0 4 9	0 6 5
Penal establishments ... ..	0 1 0	0 0 10	0 0 11	0 1 1	0 1 4	0 0 8	0 1 0
Education ... ..	0 19 11	0 16 7	0 19 8	0 16 4	1 3 2	0 13 2	0 18 6
Medical and charitable ... ..	0 10 0	0 9 5	0 15 2	0 10 10	0 18 2	0 9 0	0 11 1
All other expenditure ... ..	2 7 7	1 9 1	1 16 9	2 14 10	3 11 2	1 1 11	2 1 9
Total ... ..	11 3 11	8 8 6	12 3 0	12 0 5	17 1 9	7 1 4	10 15 10

In four of the States, viz., Western Australia, South Australia, Queensland, and New South Wales, the average State expenditure per head exceeded that for the Commonwealth as a whole, and fell short of it in the other two States.

6. **Relative Importance.**—The relative importance of the items of expenditure enumerated above varies considerably in the several States. This will readily be seen from the following table, giving for each State the percentage of the expenditure under the various items, on the total expenditure for the State:—

## PERCENTAGE OF ITEMS ON TOTAL STATE EXPENDITURE, 1916-17.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
	%	%	%	%	%	%	%
Public debt (interest, sink- ing fund, &c.) ... ..	23.77	26.84	28.01	28.59	33.54	43.26	27.09
Railways and tramways (working expenses) ... ..	36.55	35.47	36.93	33.46	29.41	20.74	34.92
Justice ... ..	1.72	1.43	1.34	0.96	1.45	0.98	1.47
Police ... ..	2.90	3.07	3.88	2.43	2.29	3.35	2.99
Penal establishments ... ..	0.44	0.50	0.38	0.44	0.39	0.50	0.44
Education ... ..	8.90	9.84	8.08	6.79	6.79	9.32	8.58
Medical and charitable ... ..	4.47	5.60	6.25	4.53	5.31	6.35	5.14
All other expenditure ... ..	21.25	17.25	15.13	22.80	20.82	15.50	19.37
Total ... ..	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Taken together, the interest and sinking fund on the public debt, and the working expenses of the railways and tramways, represented for the year 1916-17 about 60 per cent. of the aggregate State expenditure, a proportion which has been maintained with great regularity for many years past.

## (c) Balances.

1. **Position on 30th June, 1917.**—On various occasions in each of the States the revenue collected for a financial year has failed to provide the funds requisite for defraying the expenditure incurred during that year, the consequence being a deficit which is usually liquidated either by cash obtained from trust funds, or by the issue of Treasury bills. In some of the States a number of such deficits has occurred, interspersed with occasional surpluses, the result being an accumulating overdraft, which in certain instances assumed very large proportions. Thus, during the period of financial stress resultant upon the crisis of 1893 and the drought conditions of succeeding years, the accumulated overdrafts of several of the States grew very rapidly, and the situation has changed very much for the worse in the years preceding 1916-17. The position of the balances of the several Consolidated Revenue Funds on 30th June, 1917, was as follows:—

## STATE CONSOLIDATED REVENUE FUND BALANCES, 30th JUNE, 1917.

State.	Cash Credit Balances.	Debit Balance.		Net Result.
		Cash Overdraft.	Overdraft liquidated by Treasury Bills	
	£	£	£	£
New South Wales ... ..	...	483,138	...	Dr. 483,138
Victoria ... ..	...	320,222	1,303,285	Dr. 1,623,507
Queensland ... ..	...	253,493	...	Dr. 253,493
South Australia ... ..	...	1,170,707	...	Dr. 1,170,707
Western Australia ... ..	...	1,370,722	690,000	Dr. 2,060,722
Tasmania ... ..	...	112,512	146,871	Dr. 259,383
Total ... ..	...	3,710,794	2,140,156	Dr. 5,850,950

## (d) Principal State Taxes.

## (a) Probate and Succession Duties.

1. **General.**—Probate duties have been levied for a considerable time in all the States of the Commonwealth. From the provisions of the several State Acts governing the payment of duty, it will be seen that both the ordinary rates and those which apply to special beneficiaries differ widely in several cases. In the following table the amount under which the estates of deceased persons were sworn, is shewn for the years 1912 to 1916:—

## VALUE OF ESTATES OF DECEASED PERSONS, 1912 to 1916.

State.	1912.	1913.	1914.	1915.	1916.
	£	£	£	£	£
New South Wales ... ..	13,389,806	8,443,068	(b) 9,997,615	b10,813,889	b11,687,910
Victoria ... ..	8,533,502	8,367,862	(b) 8,481,720	b8,759,728	b8,917,481
Queensland ... ..	(b) 2,730,039	1,685,287	2,101,558	2,483,908	2,746,508
South Australia ... ..	(a) 2,383,238	2,214,241	2,907,561	2,734,597	1,893,017
Western Australia ... ..	(a) 841,800	607,972	739,956	850,367	1,462,820
Tasmania ... ..	983,618	680,477	620,108	721,850	807,513
Total ... ..	28,862,003	21,998,907	24,848,518	26,364,339	27,515,249

(a) Gross values.

(b) Including Letters of Administration.

The duty collected in the several States for the financial years 1912-13 to 1916-17 is as follows:—

**AMOUNT OF PROBATE AND SUCCESSION DUTIES COLLECTED, 1912-13 to 1916-17.**

State.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£
New South Wales ...	365,250	512,529	551,629	645,554	826,769
Victoria ...	443,682	457,042	536,869	510,032	546,400
Queensland ...	108,367	89,835	112,740	136,277	146,077
South Australia ...	58,811	226,367	113,734	183,919	134,620
Western Australia ...	47,929	30,662	40,156	44,284	40,963
Tasmania ...	25,980	29,094	38,252	36,700	37,310
Total ...	1,050,019	1,345,529	1,393,380	1,556,766	1,732,139

For particulars relating to the legislation of the different States on probate and succession duties see Year Book No. 6, pp. 815-818.

**(b) Stamp Duties.**

1. **Revenue.**—The revenue derived by the several States of the Commonwealth from stamp duties for the years 1912-13 to 1916-17 is shewn in the accompanying table:—

**STAMP REVENUE (EXCLUSIVE OF PROBATE AND SUCCESSION DUTIES),  
1912-13 to 1916-17.**

State.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£
New South Wales ...	233,940	377,707	552,762	522,992	550,211
Victoria ...	252,407	278,240	289,384	400,056	376,196
Queensland ...	186,083	205,635	208,664	185,734	175,186
South Australia ...	101,498	101,094	81,007	114,169	145,079
Western Australia ...	70,652	77,051	64,398	64,858	67,035
Tasmania ...	75,171	83,202	73,754	69,888	77,636
Total ...	919,751	1,122,929	1,269,969	1,357,697	1,391,343

2. **Bank Notes.**—Promissory notes issued by any bank were not required to bear a duty stamp either impressed or adhesive, and might be re-issued as often as thought fit. An annual composition was, however, paid in lieu of stamp duty up to 1910. This composition was payable quarterly, and was the same in all States, being at the rate of £2 per annum on every £100 or part thereof of the average annual amount of bank notes in circulation. On 2nd June, 1893, the Treasury Notes Act of Queensland was assented to, by which the issue of Treasury notes payable on demand was authorised. These notes were used exclusively by the banks in that State, but their issue was prohibited by the Federal Bank Note Tax Act, and they have now passed out of circulation. (See Section xxi., Private Finance.)

The issue of bank notes by the banks has practically ceased owing to this Act, which passed the Federal Parliament in the session of 1910, and was assented to on 10th October, 1910. Further reference is made to the Act in the section dealing with Private Finance. It is sufficient to say here that it imposed a tax of 10 per cent. per annum on all bank notes issued or re-issued by any bank in the Commonwealth after the commencement of the Act and not redeemed.

For further details concerning Stamp Duty Legislation, see Year Book No. 7, p. 723.

## (c) Land Tax.

1. **General.**—All the States now impose a Land Tax, although Queensland, the last State to fall into line, only collected its first levy in 1915-16. Western Australia imposed its first tax in 1907, but in the other States the impost is of very long standing.

The following table shews the amount collected by means of such taxes during the financial years 1912-13 to 1916-17 in the States in which a land tax was imposed:—

STATE LAND TAX COLLECTIONS, 1912-13 to 1916-17.

State.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£
New South Wales ... ..	5,738	4,692	3,346	3,190	3,215
Victoria ... ..	308,275	302,224	303,550	352,353	369,486
Queensland ... ..	...	...	...	247,044	362,535
South Australia ... ..	141,807	136,602	131,896	154,483	139,372
Western Australia ... ..	46,519	46,201	36,433	47,716	42,431
Tasmania ... ..	79,276	79,085	80,863	82,436	83,595
Total ... ..	581,615	568,804	556,088	887,222	1,000,634

For details relating to State Land Tax legislation see Year Book No. 6, pp. 821-823.

## (d) Income Tax.

1. **General.**—A duty on the income of persons, whether it be derived from personal exertion or from the produce of property, is now imposed in all the States of the Commonwealth. As might be expected in dealing with the different States, the rates, exemptions, etc., are widely divergent, but the general principle of the several Acts is strikingly consistent. The Dividend Duties Acts of Queensland and Western Australia—the former of which is now repealed—supplied to a certain extent the place of an income tax in those States in former years, but, with the increasing demands upon the State Treasury, the levying of a direct income tax has been found necessary.

In the following table particulars are furnished concerning the total amount collected in the several States during the years 1912-13 to 1916-17. In the case of Queensland and Western Australia the amount of dividend duty collected is included, this tax being closely allied to the income tax.

STATE INCOME AND DIVIDEND TAXES, 1912-13 to 1916-17.

State.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£
New South Wales ... ..	662,625	1,290,370	1,653,923	1,707,403	1,973,477
Victoria ... ..	542,236	527,705	506,214	702,745	766,746
Queensland ... ..	421,507	472,918	517,273	766,560	756,292
South Australia ... ..	210,034	240,996	236,270	212,418	264,946
Western Australia ... ..	171,239	174,558	174,561	195,249	196,221
Tasmania ... ..	148,413	162,458	157,595	177,730	216,278
Total ... ..	2,156,054	2,869,005	3,245,836	3,762,105	4,173,960

For details relating to Income Tax legislation in the various States see Year Book No. 6, pp. 823-829.

### § 3. Trust Funds.

1. **Nature.**—In addition to the moneys received by the several State Governments as revenue, and paid to the credit of their respective Consolidated Revenue Funds, considerable sums are held by the Governments in trust for various purposes. One of the chief sources of these trust funds is the State Savings Bank, which exists in each State either as a Government department or under the control of a Board acting under Government supervision or Government guarantee. In most of the States also, sinking funds for the redemption of public debt are provided, and the moneys accruing thereto are paid to the credit of the appropriate trust funds. A similar course is followed in the case of municipal sinking funds placed in the hands of the Government. In all the States except New South Wales, life assurance companies carrying on business are required to deposit a substantial sum in cash or approved securities with the Government, and these deposits go to further swell the trust funds. Various other deposit accounts, superannuation funds, suspense accounts, etc., find a place in these funds. The trust funds have at various times enabled the several State Treasurers to tide over awkward financial positions, but the propriety of allowing deficits to be frequently liquidated in this manner is worthy of very serious consideration.

2. **Extent of Funds.**—The amount of such funds held by the several State Governments on 30th June, 1917, was as follows:—

STATE TRUST FUNDS ON 30th JUNE, 1917.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	£	£	£	£	£	£	£
Amount of trust funds	5,619,703	10,041,300	Dr. 1,776,739	2,303,897	11,822,775	1,081,835	29,092,771

### § 4. Loan Funds.

1. **Nature.**—As early in the history of Australia as 1842 it was deemed expedient to supplement the revenue collections by means of borrowed moneys, the earliest of the loans so raised being obtained by New South Wales for the purpose of assisting immigration, at rates of interest varying from 2½d. to 5½d. per £100 per diem, or approximately from 4½ per cent. to 8 per cent. per annum. The principal reason for Australian public borrowing, however, has been the fact that the Governments of the several States have, in addition to ordinary administrative duties, undertaken the performance of many functions which, in other countries, are usually entrusted to local authorities, or left to the initiative of private enterprise. Principal amongst these have been the construction of railways and the control of the railway systems of the several States, while the assumption by the State Governments of responsibilities in connection with improvements to harbours and rivers, and the erection of lighthouses, as well as the construction of works for the purposes of water supply and sewerage, have materially swelled the amounts which it has been considered expedient to obtain by means of loans. The Australian State loan expenditure and public debt thus differ very materially from those of most European countries, where such expenditure is very largely incurred for purposes of defence, or absorbed in the prosecution of war. The State debts of Australia, on the other hand, consist in the main of moneys raised and expended with the object of assisting the development of the resources of the Commonwealth, and are, to a very large extent, represented by tangible assets such as railways, tramways, waterworks, etc.

2. **Loan Expenditure, 1916-17.**—During the year ended 30th June, 1917, the actual expenditure of the Australian States from loan funds amounted to £14,714,294, New South Wales with a total of £6,862,179 being the principal contributor to this amount, while Victoria, whose expenditure amounted to £2,440,966, ranked second. The chief item of expenditure for the year was that of railways and tramways, which represented a total of £7,335,033, water supply and sewerage works contributing the amount of £2,364,923; the expenditure on harbours, rivers, etc., and roads and bridges totalling £2,144,530, and land purchases for settlement, loans to local bodies, advances to settlers, etc., were the most important of the remaining items. Details for the year for each State are given in the following table:—

## STATE LOAN EXPENDITURE, 1916-17.

Heads of Expenditure.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	£	£	£	£	£	£	£
Railways and tramways ...	3,842,809	1,266,352	1,342,249	413,095	337,472	133,056	7,335,033
Water supply and sewerage ...	1,435,549	302,893	3,504	546,491	76,486	...	2,364,923
Harbours, rivers, etc. ...	1,042,627	297,352	...	528,116	127,737	148,698	2,144,530
Roads and bridges ...	296,351	63,490	135,764	77,131	23,350	41,361	637,447
Public buildings ...	a 248	...	...	...	19,828	...	19,828
Development of mines, etc. ...	(a) 4,204	13,322	...	119,312	93,165	...	221,595
Advances to settlers ...	(a) 1,322	103,647	...	117,985	...	15,802	237,434
Land purchases for settlement ...	(a) 3,918	...	430,737	...	...	54,019	483,434
Loans to local bodies ...	(a) 3,918	...	506	(a) 31,362	...	...	(a) 34,774
Rabbit-proof fences ...	254,287	6394,158	355,202	40,763	177,146	83,536	1,305,092
Other public works and purposes	...	...	...	...	...	...	...
<b>Total</b> ...	<b>6,862,179</b>	<b>2,440,966</b>	<b>2,267,962</b>	<b>1,811,531</b>	<b>855,184</b>	<b>476,472</b>	<b>14,714,294</b>

(a) Repayment.

(b) Including £82,815 in aid of revenue.

3. **Aggregate Loan Expenditure.**—The total loan expenditure of the Australian States from the initiation of the borrowing system to the 30th June, 1917, has amounted to no less a sum than £371,736,652. The manner in which this sum has been spent in the several States is furnished in the following table:—

## AGGREGATE STATE LOAN EXPENDITURE TO 30th JUNE, 1917.

Heads of Expenditure.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	£	£	£	£	£	£	£
Railways and tramways...	85,987,555	53,859,332	38,358,275	20,146,099	17,972,112	5,411,039	221,734,412
Telegraphs & telephones	1,761,844	...	996,587	991,773	...	142,410	3,892,614
Water supply & sewerage	23,776,257	12,068,483	367,811	8,980,743	4,816,981	...	50,030,275
Harbours, rivers, etc. ...	16,544,386	2,073,303	3,354,416	5,104,790	3,925,864	4,737,258	35,740,017
Roads and bridges ...	1,457,536	149,323	363,084	291,615	...	128,224	2,389,782
Defence ...	7,906,996	2,395,697	1,946,212	1,470,392	779,526	1,202,235	15,701,058
Public buildings ...	569,930	...	2,763,070	...	392,338	235,000	3,960,338
Immigration ...	...	371,900	...	...	1,717,918	...	2,089,818
Development of mines, &c. ...	62,951	886,780	...	1,967,441	2,105,558	...	5,022,730
Advances to settlers ...	489,000	5,058,216	...	2,190,077	324,662	258,695	8,320,650
Land purchases for settlement ...	5,531	...	5,107,020	...	64,491	1,214,469	6,391,511
Loans to local bodies ...	47,908	...	(a)	321,258	328,703	...	697,869
Rabbit-proof fences ...	764,747	5,970,050	2,304,666	2,490,281	3,233,164	1,002,670	15,765,578
Other public works & purposes ...	...	...	...	...	...	...	...
<b>Total</b> ...	<b>139,374,641</b>	<b>82,853,084</b>	<b>55,561,141</b>	<b>43,954,469</b>	<b>35,661,317</b>	<b>14,332,000</b>	<b>371,736,652</b>

(a) Included in loans to local bodies.

It must be noted that the figures furnished in this table represent the amounts actually spent, and consequently differ somewhat from those given later in the statements relating to the public debt, which represent amount of loans still unpaid at a given date. The loan expenditure statement includes all such expenditure, whether the



loans by means of which the necessary funds were raised have been repaid or are still in existence. On the other hand, in the public debt statement loans repaid are excluded, but in the case of loans still outstanding each is shown according to the amount repayable at maturity, not according to the amount originally available for expenditure.

4. **Relative Importance of Loan Items.**—The relative importance of the different items of loan expenditure given in the foregoing table varies considerably in the several States, but in each instance the expenditure on railways and tramways predominates, the percentage of this item on total expenditure ranging between the limits of 38 per cent. in the case of Tasmania and 69 per cent. in that of Queensland. The following table gives for each State the percentage of each item on the total loan expenditure of that State to 30th June, 1917:—

**PERCENTAGE OF EACH ITEM ON TOTAL LOAN EXPENDITURE OF THE STATES TO 30th JUNE, 1917.**

Heads of Expenditure.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	%	%	%	%	%	%	%
Railways and tramways ...	61.70	65.01	69.04	45.83	50.40	37.76	59.65
Telegraphs and telephones ...	1.26	...	1.80	2.26	...	0.99	1.05
Water supply and sewerage ...	17.06	14.59	0.66	20.43	13.51	...	13.46
Harbours, rivers, etc. ...	11.87	2.50	6.04	11.61	11.01	33.05	9.61
Roads and bridges ...							
Defence ...	1.05	0.18	0.65	0.66	...	0.90	0.64
Public buildings ...	5.67	2.89	3.50	3.35	2.19	8.39	4.22
Immigration ...	0.41	...	4.97	...	1.10	1.64	1.07
Development of mines, etc. ...	...	0.45	...	...	4.81	...	0.56
Advances to settlers ...	0.05	1.07	...	4.48	5.90	...	1.35
Land purchases for settlement	0.35	6.10	...	4.98	0.91	1.80	2.24
Loans to local bodies ...	...	...	9.19	...	0.18	8.47	1.72
Rabbit-proof fences ...	0.03	...	(a)	0.73	0.92	...	0.19
Other public works & purposes	0.55	7.21	4.15	5.67	9.07	7.00	4.24
Total ...	100.00	100.00	100.00	100.00	100.00	100.00	100.00

(a) Included in loans to local bodies.

5. **Loan Expenditure in Successive Years.**—In the following table are given particulars relative to the loan expenditure of the several States during each of the years 1907-8 to 1916-17:—

**STATE LOAN EXPENDITURE, 1907-8 to 1916-17.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
	£	£	£	£	£	£	£
1907-8 ...	1,965,329	783,538	1,033,676	495,928	733,745	224,954	5,237,170
1908-9 ...	2,906,507	1,098,360	1,247,821	832,114	1,012,452	334,200	7,431,454
1909-10 ...	3,246,640	1,209,505	1,486,216	978,082	1,028,995	435,104	8,384,542
1910-11 ...	3,921,758	2,657,271	1,995,301	1,567,210	1,484,367	300,216	11,926,123
1911-12 ...	5,491,103	2,974,149	3,324,248	1,756,050	2,344,070	435,557	16,325,177
1912-13 ...	7,703,594	2,202,697	2,448,066	2,247,337	3,423,020	404,560	18,429,274
1913-14 ...	9,126,844	3,276,994	2,190,150	2,762,686	2,883,169	498,141	20,737,984
1914-15 ...	6,996,107	5,351,830	2,638,266	2,532,759	2,521,608	785,269	20,825,839
1915-16 ...	8,173,104	4,473,569	3,061,839	2,097,197	1,584,643	880,394	20,270,746
1916-17 ...	6,862,179	2,440,966	2,267,962	1,811,531	855,184	476,472	14,714,294

Throughout the ten years under review the loan expenditure of New South Wales exceeded that of any other of the States, and for many years has represented about 40 % of the aggregate of Australia. The large loan expenditure of New South

Wales in 1908-9, 1909-10, and 1910-11, was incurred chiefly in connection with railway construction and the resumption of the foreshores and adjoining properties of Darling Harbour. In Victoria the heavy expenditure of 1905-6 resulted in large measure from the purchase of lands for closer settlement, while the construction of railways and water supply and sewerage works was mainly responsible for the high amounts of 1908-9 and 1909-10. In 1910-11 the large amount was mainly accounted for by heavy expenditure on railways and land purchased for settlement. In the case of the large loan expenditure of Queensland in 1906-7, 1908-9, 1909-10 and 1910-11, railway construction was the principal contributing item. In Western Australia the heavy loan expenditure of 1908-9 was principally in connection with railway construction and water supply. The year 1916-17 shewed a great decline in the total loan expenditure, which is likely to be maintained in the future, in view of the scarcity of capital.

**6. Loan Expenditure per Head.**—The loan expenditure per head of population varies materially in the different States and in different years, reaching its highest point for the ten years under review in Western Australia in 1912-13 with £11 3s. 7d. per head, and its lowest in Victoria in 1906-7 with 9s. 9d. per head. Particulars concerning the loan expenditure per head for the ten years 1907-8 to 1916-17 are given hereunder:—

**STATE LOAN EXPENDITURE PER HEAD, 1907-8 to 1916-17.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania	All States.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1907-8 ...	1 5 2	0 12 9	1 17 11	1 6 3	2 17 8	1 3 9	1 5 2
1908-9 ...	1 16 8	0 17 7	2 4 10	2 2 9	3 18 0	1 14 10	1 15 1
1909-10 ...	2 0 3	0 18 11	2 11 5	2 9 4	3 17 6	2 5 1	1 18 9
1910-11 ...	2 7 9	2 0 10	3 6 7	3 16 5	5 7 3	1 11 0	2 13 11
1911-12 ...	3 5 7	2 3 8	5 6 10	4 4 0	7 19 4	2 5 0	3 11 6
1912-13 ...	4 6 8	1 11 10	3 16 11	5 4 6	11 3 7	2 1 0	3 17 10
1913-14 ...	4 19 8	2 6 5	3 6 4	6 5 6	8 19 10	2 9 5	4 5 1
1914-15 ...	3 15 1	3 14 10	3 17 3	5 14 8	7 16 2	3 18 0	4 4 4
1915-16 ...	4 7 6	3 3 1	4 10 0	4 15 5	4 19 8	4 7 7	4 2 2
1916-17 ...	3 13 10	1 14 10	3 7 9	4 3 11	2 15 4	2 7 8	3 0 4

## § 5. Public Debt.

**1. Initiation of Public Borrowing.**—The earliest of the loans raised in Australia for Government purposes was that obtained by New South Wales in 1842. This and nine other loans raised prior to 1855 were all procured locally. In the last-mentioned year Australia's first appearance on the London market occurred, the occasion being the placing of the first instalment of the New South Wales 5 per cent. loan for £683,300. Victoria first appeared as a borrower in 1854, and made its first appearance on the London market in 1859. In the remaining States the first public loans were raised in the following years:—Queensland 1861, South Australia 1854, Western Australia 1845, and Tasmania 1867.

**2. Nature of Securities.**—All the earlier loans raised by the Australian States were obtained by the issue of debentures, some of which were repayable at fixed dates, and others by annual or other periodical drawings. In more recent years, however, the issue of debentures has given place to a great extent to that of inscribed stock, the inscription in the case of local issues being carried out by the State Treasuries, and in the cases of loans floated in London being mainly performed by the Bank of England and the London and Westminster Bank. The issue of debentures has not, however, been entirely discontinued, for within recent years debentures to a large amount have been placed on the market by the Government of New South Wales. In other States also, recent issues of debentures have taken place, the occasions usually being those in which the term of the loan is less than that ordinarily attaching to issues of

inscribed stock. Another form of security is that variously known as the Treasury bill or Treasury bond. This is usually merely a short term debenture having a currency in most instances of from three to five years. The bonds are issued in certain cases to liquidate deficiencies in revenue, and in others to obtain moneys for the purpose of carrying on public works at a time when it is deemed inexpedient to place a permanent loan on the market. The amount of the public debt of the several States held in each of these forms of security is furnished in the table hereunder :—

**PUBLIC DEBT OF THE AUSTRALIAN STATES, 30th JUNE, 1917.**

State.	Debentures.	Inscribed Stock.	Treasury Bills.		Total Amount Outstanding.
			For Public Works and Services.	In aid of Revenue.	
	£	£	£	£	£
New South Wales ...	11,915,450	114,799,302	11,423,595	...	138,138,347
Victoria ...	23,959,422	49,395,828	3,466,860	1,303,285	78,125,395
Queensland ...	18,801,449	38,282,747	3,093,590	1,125,350	61,303,136
South Australia ...	2,110,900	31,245,230	6,008,150	...	39,364,280
Western Australia ...	1,568,410	33,866,076	4,790,340	690,000	40,914,826
Tasmania ...	2,008,608	11,663,032	1,000,000	...	14,671,640
Total ...	60,364,239	279,252,215	29,782,535	3,118,635	372,517,624

The manner in which the amount of public debt of the Australian States held under these various forms of security has grown during the past nine years will be seen from the following table :—

**PUBLIC DEBT OF THE AUSTRALIAN STATES, 1907-8 to 1916-17.**

Date.	Debentures.	Inscribed Stock.	Treasury Bills.		Total Amount Outstanding.
			For Public Works and Services.	In aid of Revenue.	
	£	£	£	£	£
30th June, 1908 ...	37,665,279	190,377,823	12,131,871	3,660,516	243,835,489
" 1909 ...	31,218,229	203,640,152	13,620,561	3,294,591	251,773,533
" 1910 ...	29,765,929	213,599,894	12,393,503	1,864,337	257,623,663
" 1911 ...	31,148,162	222,343,184	8,939,771	3,946,166	(a) 267,127,283
" 1912 ...	31,576,656	230,170,271	13,962,002	1,265,166	(b) 277,124,095
" 1913 ...	39,044,995	241,819,896	12,345,935	1,161,660	(c) 294,472,486
" 1914 ...	37,160,145	265,734,131	13,572,562	1,131,950	317,598,788
" 1915 ...	47,550,115	269,686,934	23,658,270	2,030,350	342,925,669
" 1916 ...	51,069,616	277,268,688	27,074,647	2,400,820	357,813,771
" 1917 ...	60,364,239	279,252,215	29,782,535	3,118,635	372,517,624

(a) Includes an advance of £750,000 from South Australian Government to Victorian Government. (b) Includes £150,000, balance of £750,000 referred to in Note (a). (c) Includes £100,000 advance from Queensland to Victorian Government.

During the period between 30th June, 1908, and 30th June, 1917, the public debt of the States increased by £128,682,135, or at the rate of about £14,000,000 per annum. The amount of debentures comprised in the total debt increased by £22,698,960 during the period, while the amount held as inscribed stock increased by £88,874,392, and that held as Treasury bills increased by £17,108,783.

**3. Increase in Indebtedness of the Several States.**—The table given hereunder furnishes particulars of the increase which has taken place during the past nine years in the public debts of the several States :—

## PUBLIC DEBT OF THE AUSTRALIAN STATES, 30th JUNE, 1908 to 1917.

Date.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
	£	£	£	£	£	£	£
30th June, 1908 ...	87,635,826	53,305,487	42,264,467	29,985,858	20,493,618	10,150,233	243,835,489
" 1909 ...	90,307,419	54,667,197	44,276,067	30,436,183	21,951,753	10,134,914	251,773,533
" 1910 ...	92,525,095	55,576,725	44,276,067	31,387,870	23,287,453	10,570,453	257,623,663
" 1911 ...	95,523,926	57,983,764	44,613,197	34,224,653	23,703,953	11,077,790	267,127,283
" 1912 ...	100,052,635	60,737,216	47,068,186	31,680,124	26,283,523	11,302,411	277,124,095
" 1913 ...	106,170,747	62,776,724	53,604,733	30,147,883	30,276,436	11,495,963	294,472,486
" 1914 ...	116,695,031	66,130,726	54,523,506	33,564,332	34,420,181	12,265,012	317,598,788
" 1915 ...	127,735,405	73,083,927	56,869,046	35,081,623	37,022,622	13,133,046	342,925,669
" 1916 ...	130,514,018	76,775,032	58,732,643	37,993,289	39,889,676	13,908,913	357,613,771
" 1917 ...	138,136,347	78,125,395	61,303,136	39,364,280	40,914,826	14,671,640	372,517,624

The State in which the greatest increase in indebtedness was experienced during the period is New South Wales, which added £50,502,521 during the period under review. On the other hand, the public debt of Tasmania increased by about £4,500,000 only.

4. **Indebtedness per Head.**—The indebtedness per head of population varies considerably in the several States, being highest in the case of Western Australia, and lowest in that of Victoria. Details for the period from 30th June, 1908, to 30th June, 1917, are as follows:—

## PUBLIC DEBT OF AUSTRALIAN STATES PER HEAD, 30th JUNE, 1908 to 1917.

Date.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
30th June, 1908 ...	55 14 0	42 19 5	76 6 10	79 6 7	79 9 9	54 2 9	58 2 8
" 1909 ...	56 10 3	43 6 11	77 13 8	78 7 1	83 7 7	53 5 7	58 18 0
" 1910 ...	56 13 2	43 6 8	74 16 10	78 18 6	85 18 6	55 6 10	58 19 0
" 1911 ...	57 9 4	43 18 3	72 12 4	83 4 6	82 13 0	58 4 2	59 9 9
" 1912 ...	57 11 9	44 16 11	74 5 0	75 5 8	86 18 8	59 9 7	59 13 5
" 1913 ...	58 13 4	45 3 0	81 13 4	68 18 5	96 8 0	59 0 2	61 6 5
" 1914 ...	62 17 9	46 10 1	80 6 4	76 12 0	106 5 0	62 6 9	64 10 5
" 1915 ...	68 7 2	51 4 9	82 9 2	80 1 6	114 15 9	66 3 9	69 5 3
" 1916 ...	70 6 0	54 12 1	85 8 8	87 12 7	126 15 2	70 8 6	72 19 7
" 1917 ...	73 18 6	55 14 0	89 19 7	91 11 4	132 12 3	74 7 0	76 1 9

5. **Flotation of Loans.**—The early loans of the Australian States, usually for comparatively small amounts, were raised locally, but, with the increasing demand for loan funds and the more favourable terms offering in the London than in the local money market, the practice of placing Australian public loans in London came into vogue, and for many years local flotations, except for short terms or small amounts, were comparatively infrequent. In more recent years, however, the accumulating stocks of money in Australia seeking investment have led to the placing of various redemption and other loans locally, with very satisfactory results. In the following table are given particulars of loans of the several States outstanding on 30th June, 1917, which had been floated in London and Australia respectively:—

## PUBLIC DEBT OF AUSTRALIAN STATES, 30th JUNE, 1917.

State.	Floated in London.		Floated in Australia.		Total Public Debt.
	Amount.	Percentage on Total Debt.	Amount.	Percentage on Total Debt.	
	£	%	£	%	£
New South Wales	92,647,203	67.07	45,491,144	32.93	138,138,347
Victoria...	42,907,086	54.92	35,218,309	45.08	78,125,395
Queensland ...	49,412,147	80.60	11,890,989	19.40	61,303,136
South Australia ...	21,313,428	54.14	18,050,852	45.86	39,364,280
Western Australia	27,979,058	68.38	12,935,768	31.62	40,914,826
Tasmania ...	9,476,250	64.59	5,195,390	35.41	14,671,640
Total ...	243,735,172	65.43	128,782,452	34.57	372,517,624

The following table, giving corresponding particulars for the aggregate indebtedness of the Australian States at the end of each of the financial years 1907-8 to 1916-17, furnishes an indication of the rapidity with which the local holdings of Australian securities have grown in recent years:—

## PUBLIC DEBT OF AUSTRALIAN STATES, 30th JUNE, 1908 to 1917.

Date.	Floated in London.		Floated in Australia.		Total Public Debt.
	Amount.	Percentage on Total Debt.	Amount.	Percentage on Total Debt.	
	£	%	£	%	£
30th June, 1908 ...	183,321,256	75.18	60,514,233	24.82	243,835,489
" 1909 ...	189,410,036	75.23	62,363,497	24.77	251,773,533
" 1910 ...	191,972,479	74.52	65,651,184	25.48	257,623,663
" 1911 ...	189,067,671	70.78	78,059,612	29.22	267,127,283
" 1912 ...	192,190,771	69.35	84,933,324	30.65	277,124,095
" 1913 ...	204,395,129	69.41	90,077,357	30.59	294,472,486
" 1914 ...	224,061,456	70.55	93,537,332	29.45	317,598,788
" 1915 ...	229,212,541	66.84	113,713,128	33.16	342,925,669
" 1916 ...	232,040,101	64.85	125,773,670	35.15	357,813,771
" 1917 ...	243,735,172	65.43	128,782,452	34.57	372,517,624

It will be seen that in the course of nine years the London indebtedness of the States has increased by £60,413,916, while the local indebtedness has increased by no less than £68,268,219. In other words, whilst on 30th June, 1908, the Australian portion of the debt represented only about one-fourth of the total, the proportion had on 30th June, 1917, grown to more than one-third.

It will be noticed in the foregoing table that the Australian indebtedness of the States increased during the year 1916-17 to a figure absolutely higher than had ever before been attained. This was due, in the main, to an arrangement with the Commonwealth Government, which was concluded shortly after the outbreak of war. It seemed very probable, at that period, that London would be reluctant to make advances for other than military purposes, and this would have seriously embarrassed several of the States which were committed to a vigorous public works and developmental policy. The Commonwealth Government met the situation by advancing £18,000,000 to five of the States in the following proportion:—New South Wales, £7,400,000; Victoria, £3,900,000; South Australia, £2,600,000; Western Australia, £3,100,000; and Tasmania, £1,000,000. Victoria contracted her portion of the debt in debentures, whereas the remaining States chose Treasury bills, but otherwise the conditions were the same. The Commonwealth Government paid the money in monthly instalments, to be repaid after two years, and the rate of interest was fixed at  $4\frac{1}{2}$  per cent. The money was taken entirely from the Australian Notes Account, and the whole transaction furnishes another illustration of the increasingly intimate financial relationship between the Commonwealth and State Governments, to which reference was made in the preceding chapter, page 779. A further advance was made to the States by the Commonwealth in 1916-17 out of the proceeds of a loan contracted in London. The loan was for £7,500,000, and carried interest partly at  $5\frac{1}{2}$  per cent., and partly at  $5\frac{3}{4}$  per cent. By agreement between the State Treasurers and the Commonwealth Treasurer, the £18,000,000 already referred to is to be repaid within five years of the termination of the war, but not later than 1925.

6. Rates of Interest.—As mentioned above, the highest rate of interest paid in connection with the earliest Australian public loans was fivepence farthing per £100 per diem, or, approximately, 8 per cent. per annum. At the present time the principal rates of interest payable on Australian public securities are  $4\frac{1}{2}$  per cent.,  $4\frac{1}{4}$  per cent., 4 per cent.,  $3\frac{1}{2}$  per cent.,  $3\frac{1}{4}$  per cent., and 3 per cent. It is most probable, however, that the amount

of outstanding debt at the higher rates will increase materially in the future, since conversion can scarcely be effected at present at a lower rate of interest than five per cent. The average rate payable on the aggregate indebtedness of the Australian States is about 3½ per cent. For the separate States the average rate payable varies considerably, being lowest in the case of Victoria and highest in that of Tasmania; the difference between these two average rates is about ½ per cent. In the table given hereunder particulars are furnished of the rates of interest payable on the public debt of the several States of the Commonwealth on 30th June, 1917:—

#### RATES OF INTEREST PAYABLE ON PUBLIC DEBT OF STATES, 30th JUNE, 1917.

Rate of Interest.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Total.
%	£	£	£	£	£	£	£
6	...	...	...	19,900	...	...	19,900
5½	...	3,000,000	758,000	1,400,000	...	432,000	5,590,000
5¼	...	2,695,400	650,000	775,000	1,100,000	200,000	6,695,400
5	...	3,985,762	2,790,935	1,744,000	2,903,000	1,683,940	14,753,617
4½	...	12,028,737	3,802,850	13,007,600	2,601,453	916,210	32,845,044
4¼	...	...	760,250	...	...	140,750	901,000
4	...	7,400,000	3,900,000	2,600,000	3,100,000	1,000,000	18,000,000
4	...	28,143,540	19,397,714	18,667,450	10,753,288	12,736,186	95,382,445
3½	...	13,514,098	267,683	2,550,050	6,174,751	1,650,000	24,714,487
3¼	...	50,306,321	34,639,103	18,569,053	6,209,648	12,378,490	127,146,373
3	...	17,047,072	10,157,860	5,489,383	5,927,240	7,350,000	46,450,341
Not bearing interest	...	17,417	1,000	600	...	...	19,017
Total public debt	...	138,138,347	78,125,395	61,303,136	39,364,280	40,914,826	372,517,624
Average rate per cent. payable	£ s. d. 3 16 1	£ s. d. 3 15 1	£ s. d. 3 18 2	£ s. d. 3 18 6	£ s. d. 3 15 1	£ s. d. 3 18 8	£ s. d. 3 16 6

(a) Includes £20,000 at 4½ per cent.

(b) Includes £24,718 at 3½ per cent.

The rapid increase which has taken place in recent years in the amount of Australian Government securities, bearing interest at the higher rates, is clearly shown in the table hereunder, which gives particulars concerning the aggregate amount of the Australian indebtedness, at the several rates of interest, on 30th June in each of the years 1913 to 1917:—

#### RATES OF INTEREST PAYABLE ON PUBLIC DEBT OF STATES, 30th JUNE, 1913 to 1917.

Rate of Interest.	30th June, 1913.	30th June, 1914.	30th June, 1915.	30th June, 1916.	30th June, 1917.
%	£	£	£	£	£
6	109,900	74,900	49,900	39,900	19,900
5½	...	...	...	...	5,590,000
5¼	...	...	...	2,950,000	6,695,400
5	142,700	142,700	2,146,800	7,010,675	14,753,617
4½	42,900	39,300	25,279,647	28,155,096	32,845,044
4¼	...	...	300,000	600,000	...
4	100,000	...	290,750	771,250	901,000
4	...	...	10,625,000	18,000,000	18,000,000
4	87,511,852	111,771,586	100,551,888	97,965,741	95,382,445
3½	27,855,439	27,679,770	26,372,084	25,989,072	24,714,487
3¼	132,108,659	131,292,054	130,392,839	129,732,699	127,146,373
3	46,585,516	46,592,430	(a) 46,567,286	(a) 46,591,188	(a) 46,450,341
Not bearing interest	15,520	6,048	349,475	8,150	19,017
Total public debt	294,472,486	317,598,788	342,925,669	357,813,771	372,517,624
Average rate % payable	£3 11 11	£3 12 6	£3 13 11	£3 15 1	£3 16 6

(a) Including £24,718 at 3½ per cent.

The feature of this table is the rapid rise in the average rate of interest. The process started in 1912, but was accelerated by the war, which has virtually made  $4\frac{1}{2}$  per cent. the present minimum rate of interest for gilt-edged securities. The average rate is likely to rise for some considerable time.

**7. Interest Payable per Head.**—The relative burden of the debts of the several States in respect of interest payments will be seen from the following table, which gives for the 30th June, 1917, the amount of interest paid during the financial year ending at that date, and also the corresponding amount per head of population :—

**STATE DEBTS.—INTEREST PAYABLE PER HEAD, 1916-17.**

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	£	£	£	£	£	£	£
Total annual interest payable ...	4,914,311	9,819,268	2,278,832	1,474,275	1,490,153	526,835	13,503,574
Annual interest payable per head	£2 12 11	£2 0 3	£3 8 1	£3 8 3	£4 16 6	£2 12 8	£2 15 5

(a) Inclusive of flotation expenses.

**8. Dates of Maturity.**—An important point of difference between the securities of the Australian Governments, whether in the form of inscribed stock, debentures, or Treasury bills, and such a well-known form of security as British Consols, is that whereas the latter are interminable, the Australian Government securities have in almost all cases a fixed date for repayment, the exceptions being the State of New South Wales, which includes in its public debt an amount representing interminable securities totalling on 30th June, 1913, £532,889; and also £7,275,158 redeemable by Government on giving 12 months' notice; the State of Victoria, which includes £5,432,703 payable at the option of the Government at any time after 29th September, 1917; the State of Queensland, which has £1,744,000 repayable at an indefinite period; and the State of South Australia, which includes £5,089,034 similarly repayable. The terms of the loans raised by the issue of debentures and inscribed stock have varied considerably in the different States, ranging between fifteen and fifty years, while loans obtained by means of Treasury bills have usually been for such short terms as from six months to five years. In the case of the majority of the loans the arrival of the date of maturity means that arrangements for renewal are necessary in respect of the greater portion of the loan, as it is only in exceptional cases that due provision for redemption has been made. The condition of the money market at the date of maturity has an important bearing on the success or otherwise with which the renewal arrangements can be effected, and consequently, in order to obviate the necessity for making an application to the market at an unfavourable time, several of the States have now adopted the practice of specifying a period of from ten to twenty years prior to the date of maturity within which the Government, on giving twelve, or in some cases six, months' notice, has the option of redeeming the loan. By such means advantage may be taken by the Government during the period of opportunities that may offer for favourable renewals. Particulars concerning the due dates of the loans of the several States outstanding on 30th June, 1917, are given in the following table.

Those loans in the case of which the Government has the option of redemption during a specified period, have been in each instance classified according to the latest date of maturity :—

**DUE DATES OF THE PUBLIC DEBTS OF THE SEVERAL STATES OUTSTANDING  
ON 30th JUNE, 1917.**

Due Dates.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Total.
	£	£	£	£	£	£	£
Overdue ...	17,417	1,000	600				19,017
1917 ...	616,667	3,802,960		668,142		279,842	5,367,611
1918 ...	19,609,533	4,280,160		5,091,575		1,947,563	30,328,831
1919 ...	11,670,569	6,282,245		2,133,496	4,050,340	456,231	24,592,881
1920 ...	5,607,720	7,479,436		1,326,336		662,942	15,076,434
1921 ...	5,725,843	4,619,100		1,785,002	116,710	763,461	13,010,116
1922 ...	7,095,800	5,917,850	2,399,750	1,754,441	1,161,000	281,440	18,610,281
1923 ...	7,856,482	8,689,838		2,433,512	556,550	87,660	19,624,042
1924 ...	16,698,065	455,740	12,973,834	1,003,743	568,570	68,484	31,768,436
1925 ...	311,799	2,772,240		98,549		150,537	3,273,125
1926 ...	415,000	5,109,000	13,007,600	1,865,183	1,922,305	327,073	22,646,161
1927 ...	9,769,105	1,449,450		1,978,401	2,500,000	560,546	16,257,502
1928 ...		897,500		846,308		9,000	1,752,808
1929 ...		747,500		221,418		309,000	1,277,918
1930 ...		1,814,650	3,704,800	302,425		9,100	5,839,975
1931 ...		1,081,648		450		9,000	1,071,098
1932 ...		929,550		1,225	1,380,540	9,000	2,320,315
1933 ...	9,686,300			368,012	716,708	48,585	10,820,505
1934 ...				1,043,421	1,866,318	39,207	2,948,946
1935 ...	12,500,000			1,478,499	3,358,185	179,857	22,516,641
1936 ...		300,000		4,250,380	1,240,000	39,207	5,829,587
1937 ...				15,586		39,207	54,793
1938 ...				92,383		39,207	131,590
1939 ...				2,560,999		39,207	2,600,206
1940 ...		248,900		14,860		5,645,707	5,909,467
1941 ...		324,380				39,207	363,587
1942 ...		485,100				39,207	524,307
1943 ...		3,600				39,207	42,807
1944 ...		400				39,207	39,607
1945 ...			7,516,050			39,207	7,555,257
1946 ...		217,400				39,207	256,607
1947 ...			4,498,693		2,000,000	39,207	6,537,900
1948 ...						39,207	39,207
1949 ...		11,699,471				39,207	11,738,678
1950 ...	12,280,000		6,946,600			2,689,207	22,035,807
1951 ...			999,600			39,207	1,038,807
1952 ...						39,200	39,200
1953 ...			2,147,809				2,147,809
1954 ...		133,874					133,874
1955 ...					4,437,000		4,437,000
1960 ...		2,979,700	2,000,000	3,000,000	1,000,000		8,979,700
1962 ...	10,500,000				6,000,000		16,500,000
1964 ...					1,566,000		1,566,000
1965 ...			1,363,800				1,363,800
1970 ...			2,000,000				2,000,000
Indefinite...	7,275,158	5,432,703	1,744,000	5,069,034	1,369,000		20,909,895
Annual drawings ...	532,889				105,600		105,600
Interminable							532,889
Total	138,138,347	78,125,395	61,303,136	39,364,280	40,914,826	14,671,640	372,517,624

**9. Sinking Funds.**—The practice of providing for the ultimate extinction of the public debt by means of the creation of sinking funds, receiving definite annual contributions from Consolidated Revenue, and accumulating at compound interest, has only been consistently adopted in the case of Western Australia. This State has established, in connection with each of its loans, sinking funds varying from 1 per cent. to 3 per cent. per annum of the nominal amount of the loan. These funds are placed in the hands of trustees in London, by whom they are invested in the securities of the British, Indian, and Colonial Governments, and applied from time to time in the redemption of loans falling due. In the remaining States the sinking fund provision made is varied, consisting in certain instances of the revenues from specified sources, in others of the Consolidated Revenue Fund surplus, and in others again of fixed annual amounts. In the following table are given particulars of the sinking funds of each State, and the net indebtedness of each after allowance for sinking fund has been made, the details given being those for 30th June, 1917 :—



## STATE SINKING FUNDS AND NET INDEBTEDNESS, 30th JUNE, 1917.

State.	Gross Indebtedness.	Sinking Fund.	Net Indebtedness.	Net Indebted- ness per head.
	£	£	£	£ s. d.
New South Wales ...	138,138,347	463,629	137,674,718	73 13 9
Victoria ...	78,125,395	1,981,903	76,143,492	54 4 4
Queensland ...	61,903,136	354,284	60,948,852	89 9 2
South Australia ...	39,364,280	1,545,213	37,819,067	88 6 7
Western Australia ...	40,914,826	5,035,963	35,878,863	116 5 9
Tasmania ...	14,671,640	765,489	13,906,151	70 8 9
Total...	372,517,624	10,146,481	362,371,143	74 0 3

10. **Total Australian Debt.**—With the object of setting out the entire liability of the Australian public, the Commonwealth and State debts for the last five years have been brought together into one statement. It will be noticed that the total Commonwealth Public Debt does not agree with the amounts given in the chapter on Commonwealth Finance. This is owing to the fact that the value of the transferred properties has been deducted in every year, since if this had not been done it would have been included twice over. The sum of £7,500,000 borrowed by the Commonwealth for the States in London, during 1916-17, has also been deducted from the Commonwealth debt of that year for the same reason.

## COMMONWEALTH AND STATES PUBLIC DEBT, 1912-13 to 1916-17.

Particulars.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£
C'wealth Public Debt...	7,430,949	9,395,322	26,651,669	90,562,488	150,939,819
States Public Debt ...	294,472,486	317,598,788	342,925,669	357,813,771	372,517,624
Total ....	301,903,435	326,994,110	369,577,338	448,376,259	523,457,443
Total debt per head...	£62 17 4	£66 8 9	£74 12 11	£91 9 0	£106 18 4

## SECTION XXI.

## PRIVATE FINANCE.

## § 1. Currency.

1. **The Three Australian Mints.**—Soon after the discovery of gold in Australia steps were taken for the establishment of a branch of the Royal Mint in Sydney. The formal opening took place on the 14th May, 1855, the mint being located in the southern part of the building once known as the "rum hospital." The Melbourne branch of the Royal Mint was opened on the 12th June, 1872, and the Perth branch on the 20th June, 1899. The States of New South Wales, Victoria, and Western Australia provide an annual endowment, in return for which the mint receipts are paid into the respective State Treasuries, and it may be said that, apart from expenditure on buildings, new machinery, etc., the amounts paid into the Treasuries fairly balance the mint subsidies. The figures for 1915 have been repeated in this issue, as the official returns for 1916 are not yet available.

2. **Receipts and Issues in 1915.**—(i.) *Assay of Deposits Received.* The number of deposits received during 1915 at the Sydney Mint was 920, of a gross weight of 509,139 ozs.; at the Melbourne Mint, 2376, of a gross weight of 487,195 ozs.; and at the Perth Mint, 4219, of a gross weight of 1,535,905 ozs. The average composition of these deposits in Sydney was, gold 866.0, silver 83.9, base 50.1 in every 1000 parts; Melbourne, gold 920.3, silver 39.0, base 40.7 in every 1000 parts; and Perth, gold 811.7, silver 125.2, base 63.1 in every 1000 parts. As many parcels have, however, undergone some sort of refining process before being received at the mint, the average assay for gold shews higher in these figures than for gold as it naturally occurs.

(ii.) *Receipts.* Practically all the gold coined at the Australian mints is the produce of either the Commonwealth or of the Dominion of New Zealand. The following table shews the origin of the gold received at the three mints during 1915:—

ORIGIN OF GOLD RECEIVED AT AUSTRALIAN MINTS DURING 1915.

Origin of Gold.	Sydney Mint.	Melbourne Mint.	Perth Mint.
	ozs.	ozs.	ozs.
New South Wales ... ..	123,613.14	11,988.48	...
Victoria ... ..	67.25	361,309.17	...
Queensland... ..	292,474.24	1,933.76	...
South Australia ... ..	...	10,039.72	3
Western Australia ... ..	166.40	9,220.22	1,534,655
Tasmania ... ..	8,412.92	8,616.78	...
Northern Territory ... ..	988.20	...	...
New Zealand ... ..	82,867.43	36,094.16	...
Other countries, origin not stated, and light gold coin ... ..	549.18	47,942.28	1,247
Total ... ..	509,138.76	487,194.57	1,535,905

It will be seen that practically all gold produced in New South Wales and Queensland, about two-thirds of that produced in New Zealand, and one-half of the Tasmanian found its way to the Sydney Mint, while the Melbourne Mint received all Victorian and South Australian gold, together with one-half of the Tasmanian and about one-third of the New Zealand production, and the Perth Mint treated practically all Western Australian gold with the exception of a small portion sent to Sydney and Melbourne.

(iii.) *Issues.* The Australian mints, besides issuing gold coin in the shape of sovereigns and half-sovereigns, also issue gold bullion, partly for the use of local manufacturers (jewellers and dentists), and partly for export, India taking annually a considerable quantity of gold cast into 10-oz. bars. The issues during 1915 are shewn in the table below:—

ISSUES OF GOLD FROM AUSTRALIAN MINTS DURING 1915.

Mint.	Coin.			Bullion.	Total.
	Sovereigns.	Half-sovereigns.	Total.		
	£	£	£	£	£
Sydney ...	1,346,000	446,000	1,792,000	72,036	1,864,036
Melbourne ...	1,637,839	62,832	1,700,671	203,037	1,903,708
Perth ...	4,373,596	68,109½	4,441,705½	851,931	5,293,636½
Total ...	7,357,435	576,941½	7,934,376½	1,127,004	9,061,380½

In addition to the issue of gold, the Mints are also charged with the issue of silver and bronze coin struck in London. There was, however, no issue of either Imperial silver or bronze coin in 1915.

(iv.) *Withdrawals of Worn Coin.* The mints receive light and worn coin for recoinage, gold being coined locally, while silver is forwarded to London. The value of gold coin so received in 1915 amounted to £155,783, viz.:—Sydney, £663; Melbourne, £155,120; and Perth, *nil*. The value of worn silver coins received during 1915 was £97,961, viz.:—Sydney, £64,480; Melbourne, £28,695; and Perth, £4786.

3. **Total Receipts and Issues.** (i.) *Receipts.* The total quantities of gold received at the three mints since their establishment are stated in the gross as follows:—Sydney, 37,376,681.58 ozs.; Melbourne, 36,639,224.26 ozs.; and Perth, 22,236,619.35 ozs. As the mints pay for standard gold (22 carats) at the rate of £3 17s. 10½d. per oz., which corresponds to a value of £4 4s. 11½d. per oz. fine (24 carats), it is possible to arrive at the number of fine ounces received from the amounts paid for the gold received. These amounts were:—Sydney, £137,881,923; Melbourne, £144,179,432; Perth, £78,071,001; corresponding to—Sydney, 32,460,162 ozs. fine; Melbourne, 33,942,715 ozs. fine; and Perth, 18,379,475 ozs. fine. Silver found in assaying is paid for if it exceeds 8 per cent.; in Sydney it has been paid for at the rate of one shilling and sixpence per oz. fine since 12th May, 1902; in Melbourne the price is fixed monthly by the Deputy-master of the Mint; and in the Perth accounts it has been taken at one shilling per oz.

(ii.) *Issues.* The total values of gold coin and bullion issued by the three mints are shewn in the table on the next page. It may be said that rather more than one-half of the total gold production of Australasia has passed through the three Australian mints, the production of the Commonwealth States to the end of 1915 being valued at £572,487,653, and that of New Zealand at £84,648,463, or a total of £657,136,116.

## TOTAL ISSUES OF GOLD FROM AUSTRALIAN MINTS TO END OF 1915.

Mint.	Coin.			Bullion.	Total.
	Sovereigns.	Half-sovereigns.	Total.		
	£	£	£	£	£
Sydney ...	126,726,500	4,557,000	131,283,500	6,612,255	137,895,755
Melbourne ...	132,605,388	946,780	133,552,168	10,630,743	144,182,911
Perth ...	70,182,045	257,344	70,439,389	7,610,414	78,049,803
Total ...	329,513,933	5,761,124	335,275,057	24,853,412	360,128,469

The total issues of silver coins to the end of 1915 were £2,415,200, viz.:—Crowns, £3500; double florins, £4585; half-crowns, £722,600; florins, £528,215; shillings, £606,200; sixpences, £253,220; and threepences, £296,880.

Bronze coins to the value of £180,150 have been issued, viz.:—Pence, £126,640; half-pence, £53,310; and farthings, £200.

(iii.) *Withdrawals of Worn Coin.* Complete figures as to the withdrawal of gold coin are as follows:—Sydney, £1,084,327; Melbourne, £669,945 (since and including 1890); and Perth, £422.

Withdrawals of worn silver coin amounted to £502,388 in Sydney, to £516,791 in Melbourne, and to £47,505 in Perth.

4. *Standard Weight and Fineness of Coinage.*—The coinage of the Commonwealth is the same as that of the United Kingdom, and the same provisions as to legal tender hold good, viz., while gold coins are legal tender to any amount, silver coins are only so for an amount not exceeding forty shillings, and bronze coins up to one shilling. As will be seen from the table below, the standard weights of the sovereign and half-sovereign are respectively 123.27447 grains and 61.63723 grains, but these coins will pass current if they do not fall below 122.5 grains and 61.125 grains respectively.

## STANDARD WEIGHT AND FINENESS OF COMMONWEALTH COINAGE.

Denomination.	Standard Weight.	Standard Fineness.
<b>GOLD—</b>	Grains.	
Sovereign ...	123.27447	Eleven-twelfths fine gold, viz.:— Gold ... 0.91667 } 1.00000 Alloy ... 0.08333 }
Half-sovereign ...	61.63723	
<b>SILVER—</b>		
Crown ...	436.36363	Thirty-seven-fortieths fine silver, viz.:— Silver ... 0.925 } 1.000 Alloy ... 0.075 }
Double florin ...	349.09090	
Half-crown ...	218.18181	
Florin ...	174.54545	
Shilling ...	87.27272	
Sixpence ...	43.63636	
Threepence ...	21.81818	
<b>BRONZE—</b>		
Penny ...	145.83333	Mixed metal, viz.:— Copper ... 0.95 } 1.00 Tin ... 0.04 Zinc ... 0.01 }
Half-penny ...	87.50000	
Farthing ...	43.75000	

5. *Prices of Silver and Australian Coinage.*—(i.) *Prices of Silver.* The value of silver has greatly decreased since its demonetisation and restricted coinage in almost the whole of Europe. Its average price in the London market in recent years is shewn in the subjoined table:—

## AVERAGE PRICE OF SILVER IN LONDON MARKET, 1877 to 1915.

Year.	Price per Standard Oz.	Year.	Price per Standard Oz.	Year.	Price per Standard Oz.
	d.		d.		d.
1877 ...	54.7500	1890 ...	47.7500	1903 ...	24.7500
1878 ...	52.5625	1891 ...	45.0625	1904 ...	26.3750
1879 ...	51.1875	1892 ...	39.8125	1905 ...	27.8125
1880 ...	52.2500	1893 ...	35.6250	1906 ...	30.8750
1881 ...	51.7500	1894 ...	29.0000	1907 ...	30.1875
1882 ...	51.8125	1895 ...	29.8750	1908 ...	24.3750
1883 ...	50.5625	1896 ...	30.7500	1909 ...	23.6875
1884 ...	50.6875	1897 ...	27.5625	1910 ...	24.6875
1885 ...	48.6250	1898 ...	26.9375	1911 ...	24.5625
1886 ...	45.3750	1899 ...	27.5000	1912 ...	28.0625
1887 ...	44.6250	1900 ...	28.3125	1913 ...	27.5625
1888 ...	42.8750	1901 ...	27.2500	1914 ...	25.3125
1889 ...	42.6875	1902 ...	24.1250	1915 ...	23.6875

(ii.) *Profits on Coinage of Silver.* As sixty-six shillings are coined out of one pound troy of standard silver, the silver required to produce £3 6s. of coin was only worth £1 3s. 8d. during 1915; the difference of £2 2s. 4d. represents, therefore, the gross profit or seignorage made on the coinage of every £3 6s. This represents a rate of seignorage of 178.63 per cent., but the expenses of coining (including interest on cost of machinery) and of withdrawals of worn coin must be deducted. Still, given a large annual demand for new silver coin, even the net profit amounts to a considerable sum. Negotiations, therefore, took place for a number of years between the Imperial authorities and the Governments of New South Wales and Victoria, which in 1898 resulted in permission being granted to the two Governments named to coin silver and bronze coin at the Sydney and Melbourne Mints for circulation in Australia. No steps were, however, taken in the matter, and as section 51 of the Commonwealth Constitution makes legislation concerning "currency, coinage, and legal tender" a federal matter, the question remained in abeyance until the latter part of 1908, when the Commonwealth Treasurer announced his intention of initiating the coinage of silver in the future.

(iii.) *Coinage Bill.* In 1909 a Coinage Bill was introduced in the Commonwealth Parliament, which provided that the future Australian coinage should consist of the following coins:—In gold, £5, £2, £1, and 10s.; in silver, 2s., 1s., 6d., and 3d.; and in bronze, 1d. and  $\frac{1}{2}$ d. Gold was to be legal tender up to any amount, silver up to 40s., and bronze up to 1s. Ultimately the coinage was to be undertaken in Australia, but for the time an agreement was made with the authorities of the Royal Mint in London, under the terms of which the coinage was to be done in London on account of the Commonwealth Government. Orders were given for the immediate coinage of £200,000 worth of silver, viz., one million florins, one million shillings, one million sixpences, and two million threepences. The coins were to bear on the obverse H.M. the King's head, with the Latin inscription which appears on the British coins, and on the reverse the Australian coat-of-arms, with the denomination and the date. The Imperial authorities undertook to withdraw £100,000 worth of the existing silver-coinage per annum at its face value. The first consignment of the new coinage arrived in Australia early in 1910, and in a short time all the silver coins contracted for were supplied to the Royal Mints, Australia. Copper coins of the value of £10,000, viz., 1,560,000 pennies and 1,680,000 half-pennies, of a design similar to that of the silver coins, were ordered. It was not, however, intended to withdraw any of the existing copper coins, but merely to make good the "leakage," which was considerable.

The issue of Australian coin in 1915 was as follows:—Sydney, £148,700 silver, and £7070 bronze; Melbourne, £98,700 silver, and £3180 bronze; and Perth, £25,400 silver, and £860 bronze. In Melbourne, the coin is distributed from the Federal Treasury.

For information concerning the imports into the Commonwealth and exports from the Commonwealth of coin and bullion during the year 1916, the enquirer is referred to the tables on pages 587 to 589.

## § 2. Banking.

1. **Banking Facilities.**—*Head Offices of Banks.* Of the twenty-four banks trading in the Commonwealth on 30th June, 1917, four have their head offices in London, viz., the Bank of Australasia; the Union Bank of Australia Limited; the English, Scottish and Australian Bank Limited; and the London Bank of Australia Limited. The head offices of the following five banks are in Sydney—The Commonwealth Bank of Australia, The Bank of New South Wales, the Commercial Banking Company of Sydney Limited, the Australian Joint Stock Bank Limited (now the Australian Bank of Commerce Limited), and the City Bank of Sydney. Five banks have their head offices in Melbourne, viz., the National Bank of Australasia Limited, the Commercial Bank of Australia Limited, the Bank of Victoria Limited, the Colonial Bank of Australasia Limited, and the Royal Bank of Australia Limited. Brisbane is the headquarters of two banks, viz., the Queensland National Bank Limited, and the Bank of Queensland Limited. Only one bank has at present its head office in Adelaide, viz., the Bank of Adelaide; and one in Perth, viz., the Western Australian Bank. Of the two Tasmanian banks, the Commercial Bank of Tasmania Limited has its head office in Hobart, and the National Bank of Tasmania Limited in Launceston. The Bank of New Zealand has its headquarters in Wellington. Of the three remaining banks, the Comptoir National d'Escompte de Paris has its head office in Paris, the Ballarat Banking Company in Ballarat, and the Yokohama Specie Bank in Yokohama, Japan. It is proposed, in the few instances where the banks are referred to by name, to arrange them in the order just given, with the exception of the Commonwealth Bank, which is placed first.

2. **Banking Legislation.**—Under Section 51 of the Commonwealth Constitution Act the Commonwealth Parliament has power to legislate with respect to "Banking, other than State banking, also State banking extending beyond the limits of the State concerned, the incorporation of banks, and the issue of paper money." Until recently the only Commonwealth banking legislation passed was Act No. 27 of 1909, "An Act relating to Bills of Exchange, Cheques, and Promissory Notes," which came into force on the 1st February, 1910. In the session of 1910, however, two Acts relating to banking were passed by the Federal Parliament. The first was the Australian Notes Act No. 11 of 1910, assented to on the 16th September, 1910, and proclaimed 1st November, 1910; and the second the Bank Notes Tax Act No. 14, 1910, assented to on 10th October, 1910, and proclaimed 1st July, 1911. Under the first of these Acts the Commonwealth Treasurer was empowered to issue notes which shall be legal tender throughout the Commonwealth, and redeemable at the seat of Federal Government. The notes are issued in denominations of 10s., £1, £5, £10, £20, £50, and £100. The Act directed the Treasurer to hold the following reserve of gold coin:—

- (a) An amount not less than one-fourth of the amount of Australian notes issued up to seven million pounds;
- (b) An amount equal to the amount of Australian notes issued in excess of seven million pounds.

For the purpose of estimating the reserve, notes which have been redeemed are not included amongst those issued.

The portion of the Act relating to the reserve has been amended by Act No. 21 of 1911, which was assented to on 22nd December, 1911. According to this amending Act the clause relating to the reserve now reads as follows:—"The Treasurer shall hold in gold coin a reserve of not less than one-fourth of the amount of Australian notes issued." It was intended that this amendment should come into force on 1st July, 1912, but the Federal Treasurer afterwards announced that its operation would be deferred until after the Commonwealth elections of 1913. These elections resulted in the return to power of another administration, and the new Treasurer, Sir John Forrest, announced his intention of maintaining the reserve at the rate provided for in the original Act during his tenure of office. This only lasted until September, 1914, but there has not, since then, been a very great diminution in the proportionate gold reserve, which on 26th June, 1918, stood at about 33.61 per cent.

The Australian Notes Act prohibited the circulation of notes issued by a State six months after the commencement of the Act, and such notes then ceased to be legal tender. In addition, the Bank Notes Act imposed a tax of 10 per cent. per annum in respect of all bank notes issued or re-issued by any bank in the Commonwealth after the commencement of this Act and not redeemed.

The Notes Act and the Bank Notes Act were supplemented in the following year by the passing of No. 18 of 1911, "An Act to provide for a Commonwealth Bank," which passed both Houses and was assented to on 22nd December, 1911. The bank thus authorised has no power to issue notes, but in every other respect it has the functions of an ordinary bank of issue. It is managed by a governor and a deputy-governor, who are appointed by the Governor-General and will hold office during good behaviour for a period of seven years, after which they will be eligible for reappointment. A novel feature is the establishment of a department dealing with savings bank business only. No further reference need be made here to this department, which is dealt with in detail in § 5. The framers of the Act have largely followed the lines laid down by the respective State Savings Bank Acts, particularly the Western Australian Act No. 9 of 1906. The capital of the bank was originally fixed at one million pounds, to be raised by the issue and sale of debentures. During the session of 1914 authority was obtained from Parliament to increase the capital of the bank to ten million pounds, with the object, it was understood, of acquiring the entire business of another bank. No such acquisition has, as yet, taken place, and no capital has, so far, been actually advanced by the Commonwealth Government to the bank. The debentures previously referred to were to be for ten pounds or certain multiples of ten pounds and redeemable at par, the Commonwealth guaranteeing interest and principal. All expenses incidental to the establishment of the bank were met by an advance from the Consolidated Revenue Fund, such advance to be ultimately repaid with interest at the rate of three-and-a-half per cent.

The first step in the organisation of the bank was the appointment as Governor, from 1st June, 1912, of Mr. Denison Miller, of the Bank of New South Wales. Mr. James Kell, of the Bank of Australasia, was subsequently appointed Deputy-Governor, and the bank was formally opened on 20th January, 1913, for the transaction of all general banking business. The result of the first day's operations was the deposit of £2,341,720, the bulk of which consisted of funds belonging to various departments of the Commonwealth Government. The opening of branches simultaneously at Sydney, Melbourne, Brisbane, Adelaide, Perth, Hobart, Townsville, Canberra, and London, marked the accomplishment of the provisions of the Commonwealth Bank Act of 1911. The Savings Bank Department, which came into existence six months previously, is dealt with in detail in the section on Savings Banks.

As the initial expenses of the bank were heavy, and as no capital was advanced, the early operations resulted in a small loss. This was debited to the profit and loss account of the bank, and the increasing prosperity of the institution can be seen by the way in which the original debit was reduced, until on 30th June, 1915, it was entirely extinguished. The following table shows the results of the transactions of the bank as published for the several periods mentioned:—

#### COMMONWEALTH BANK, 1913-17.

Net Result at 30th June.				General Bank.	Savings Bank.	Entire Bank.
				£	£	£
1913	...	...	...	Dr. 24,329	Dr. 22,308	Dr. 46,637
1914	...	...	...	Cr. 11,761	Dr. 48,757	Dr. 36,996
1915	...	...	...	Cr. 56,905	Dr. 54,694	Cr. 2,221
1916	...	...	...	Cr. 181,445	Dr. 34,376	Cr. 147,069
1917	...	...	...	Cr. 522,467	Cr. 3,825	Cr. 526,292

It will be seen from the above that the general bank became profitable at a much earlier stage than the savings bank. According to the provisions of section 30 of the Bank Act, the net profit of £526,292 disclosed at 30th June, 1917, was divided equally between a bank reserve fund and a redemption fund. The reserve fund is available for

the payment of any liabilities of the bank. The redemption fund is available for the repayment of any money advanced to the bank by the Treasurer, or for the redemption of debentures or stock which may be issued by the bank; and any excess may be used for the purposes of the redemption of any Commonwealth debts, or State debts taken over by the Commonwealth.

Under the existing laws, banks are required to furnish quarterly statements of their average assets and liabilities, but these statements are not equally complete in all the States. Until the close of 1907 these quarterly statements, together with the periodical balance-sheets of the banks (generally half-yearly, but in a few cases yearly), were the only information available in regard to banking business. During the year 1908 the Commonwealth Statistician, under the provisions of the Census and Statistics Act, asked the banks for quarterly returns giving slightly more detailed information than had previously been obtained. As, however, this extra information has not been forthcoming in the case of all the banks, the returns for the years subsequent to 1907 have been practically left in the same condition as those for 1907 and previous years.

The Acts under which the various banks are incorporated are not all of the same nature, but it may be stated that while most of the older banks were incorporated by special Acts, *e.g.*, the Bank of New South Wales, by Act of Council 1817; the Bank of Australasia, by Royal Charter; the Bank of Adelaide, by Act of the South Australian Parliament; and the Bank of New Zealand, by Act of the General Assembly of New Zealand, the newer banks are generally registered under a "Companies Act," or some equivalent Act. This is also the case with those banks which, after the crisis of 1893, were reconstructed.

**3. Capital Resources of Banks.**—The paid-up capital of the cheque-paying banks, together with their reserve funds, the rate per cent., and the amount of their last dividends, is shewn in the table hereunder. The information relates to the balance-sheet last preceding the 30th June, 1917. In regard to the reserve funds it must be stated that in the case of some of the banks these are invested in Government securities, while in other cases they are used in the ordinary business of the banks, and in a few instances they are partly invested and partly used in business.

#### CAPITAL RESOURCES OF CHEQUE-PAYING BANKS, 1916-17.

Bank.	Paid-up Capital.	Rate per cent. per annum of last Dividend and Bonus.	Amount of last $\frac{1}{2}$ -yrl. Dividend & Bonus.	Amount of Reserved Profits.
	£	%	£	£
Commonwealth Bank of Australia ... ..	...	...	...	526,292
Bank of Australasia ... ..	2,000,000	14 & 12/- bonus ps.	170,000	2,962,650
Union Bank of Australia Limited ... ..	2,000,000	14	140,000	2,031,850
English, Scottish and Australian Bank Limited ... ..	539,438	8	43,155	493,885
London Bank of Australia Limited ... ..	669,670 <sup>1</sup>	7	23,200 <sup>2</sup>	375,681
Bank of New South Wales ... ..	3,894,980	10	97,374 <sup>3</sup>	2,914,827
Commercial Banking Company of Sydney Limited ... ..	2,000,000	10	100,000	1,952,758
Australian Bank of Commerce Limited ... ..	1,198,679	3	17,980	103,464
City Bank of Sydney ... ..	400,000	4	8,000	53,139
National Bank of Australasia Limited ... ..	1,498,220 <sup>4</sup>	7	52,437	663,694
Commercial Bank of Australia Limited ... ..	2,213,009 <sup>5</sup>	4	42,347	7,383
Bank of Victoria Limited ... ..	1,478,010 <sup>6</sup>	6	44,340	440,155
Colonial Bank of Australasia Limited ... ..	439,280	7	15,375	286,133
Royal Bank of Australia Limited ... ..	300,000	8	12,000	278,156
Queensland National Bank Limited ... ..	480,000	...	...	36,934
Bank of Queensland Limited ... ..	450,000	...	...	...
Bank of Adelaide ... ..	500,000	8	20,000	556,173
Western Australian Bank ... ..	250,000	20	25,000	713,370
Commercial Bank of Tasmania Limited ... ..	200,000	14	14,000	271,422
National Bank of Tasmania Limited ... ..	195,250	7	6,834	86,581
Bank of New Zealand ... ..	2,279,988	{ 12 & 3 bonus Ordinary 10 Preferen. 4 Guarant'd }	237,500	2,246,595
Comptoir National d'Escompte de Paris ... ..	8,000,000	5	400,000 <sup>8</sup>	1,667,576
Ballarat Banking Company Limited ... ..	85,000	9	3,825	91,087
Yokohama Specie Bank ... ..	3,600,000	12	180,000	2,301,985
Total ... ..	34,671,524	...	...	21,051,790

1. Including calls in arrear. 2. £305,780 preferential, £1,192,440 ordinary. 3. Subject to estimated deficiency in connection with Special Assets Trust Co. Ltd. 4. £416,760 preferential, £1,061,250 ordinary. 5. For 12 months. 6. Dividend for quarter.



4. **Liabilities and Assets of Banks.**—(i.) *Liabilities of Banks for Quarter ended 30th June, 1917.* As already stated, the banks transacting business in any State are obliged, under the existing State laws, to furnish a quarterly statement of their assets and liabilities, which contains the averages of the weekly statements prepared by the bank for that purpose, and they have, during the years 1908-17, furnished quarterly statements to the Commonwealth Statistician. As all other financial returns in this work embrace, so far as possible, a period ended 30th June, 1917, it seems advisable to give the banking figures for the quarter ended on that date, and, where they are shewn for a series of years, similarly to use the figures for the June quarter of each year. The liabilities are those to the general public, and are exclusive of the banks' liabilities to their shareholders, which are shewn in the preceding table:—

**AVERAGE LIABILITIES OF BANKS IN EACH STATE OF THE COMMONWEALTH AND THE NORTHERN TERRITORY FOR THE QUARTER ENDED 30th JUNE, 1917.**

State.	Notes in Circulation, not bearing interest.	Bills in Circulation, not bearing interest.	Balances Due to other Banks.	Deposits.			Total Liabilities.
				Not Bearing Interest.	Bearing Interest.	Total.	
	£	£	£	£	£	£	£
New South Wales	80,765	584,566	1,534,805	46,599,979	37,449,287	84,049,266	86,249,402
Victoria ...	97,634	189,481	771,891	30,681,391	34,560,260	65,241,651	66,300,657
Queensland ...	(a)	568,978	460,615	14,110,012	15,105,455	29,215,467	30,245,060
South Australia	27,680	25,859	553,483	7,080,655	8,732,304	15,812,959	16,419,981
West. Australia	27,174	43,771	181,387	4,324,633	4,194,865	8,519,498	8,771,830
Tasmania ...	11,553	26,305	106,176	2,465,578	3,501,330	5,966,908	6,110,942
North. Territory	...	59	52,496	129,713	195,926	324,639	377,194
Total ...	244,806	1,439,019	3,660,853	105,390,961	103,739,427	209,130,388	214,475,066

(a) In Queensland, Treasury notes were used instead of bank notes.

(ii.) *Assets of Banks for Quarter ended 30th June, 1917.* The average assets of the banks are shewn in the following table:—

**AVERAGE ASSETS OF BANKS IN EACH STATE OF THE COMMONWEALTH AND THE NORTHERN TERRITORY FOR THE QUARTER ENDED 30th JUNE, 1917.**

State.	Coined Gold and Silver and other Metals.	Gold and Silver in Bullion or Bars.	Government and Municipal Securities.	Landed and House Property.	Notes and Bills of other Banks.	Balances Due from other Banks.	Discounts Overdrafts, and all other Assets.	Australian Notes.	Total Assets.
	£	£	£	£	£	£	£	£	£
N.S.W.	10,722,374	541,658	14,399,954	2,348,946	534,028	2,139,955	48,592,808	11,766,418	91,046,141
Victoria	4,877,867	140,452	4,270,313	1,478,094	700,797	1,083,202	36,629,442	10,219,612	59,699,779
Q'land	2,295,029	62,221	860,140	784,912	409,054	683,812	17,753,800	4,233,305	27,082,273
S. Aust.	1,720,636	12,174	335,930	306,768	177,910	564,500	8,459,562	2,113,584	13,691,114
W. Aust.	1,403,264	397,812	663,291	230,691	131,038	505,447	9,057,389	1,698,088	14,087,020
Tas. ...	663,232	48	1,485,959	137,588	37,454	397,344	2,988,916	894,549	6,605,060
Nor. Ter.	3,008	1,668	...	1,200	45,016	55,624	5,935	10,127	122,578
Total	21,685,410	1,156,033	22,015,637	5,288,199	2,035,297	5,429,884	123,787,852	30,935,683	212,333,995

(iii.) *Liabilities of Banks for June Quarters, 1908 to 1917.* In the subjoined table, which shows the average liabilities of the banks for the quarters ended 30th June, 1908 to 1917, for the Commonwealth as a whole, it will be seen that the growth in total liabilities is almost entirely due to an increase in the deposits, and that deposits not bearing interest and deposits bearing interest have equally shared in that increase:—

**AVERAGE LIABILITIES OF BANKS IN THE COMMONWEALTH FOR THE QUARTER ENDED 30th JUNE, IN THE YEARS 1908 to 1917.**

Year.	Notes in Circulation not Bearing Interest.	Bills in Circulation not Bearing Interest.	Balances due to other Banks.	Deposits.			Total Liabilities
				Not Bearing Interest.	Bearing Interest.	Total.	
	£	£	£	£	£	£	£
1908	3,536,227	707,903	796,447	46,015,448	67,678,940	113,694,388	118,734,965
1909	3,510,629	720,853	555,806	46,812,632	70,945,623	117,758,255	122,545,543
1910	3,748,482	821,758	570,115	55,233,862	74,657,274	129,891,136	135,031,491
1911	3,718,458	828,663	741,188	62,226,897	81,220,013	143,446,910	148,835,219
1912	536,984	1,002,062	872,946	65,408,841	84,397,756	149,806,597	152,218,589
1913	383,975	1,094,095	2,492,229	62,012,773	87,814,795	149,827,568	153,582,867
1914	306,809	1,069,548	2,750,788	70,195,462	93,659,063	163,854,555	168,001,700
1915	275,589	1,140,592	3,347,646	75,380,916	99,598,420	174,979,336	179,743,163
1916	257,631	1,263,622	4,389,228	92,831,872	100,118,758	192,940,630	198,851,101
1917	244,806	1,439,019	3,660,853	105,390,961	103,739,427	209,130,388	214,475,066

(iv.) *Assets of Banks for June Quarters, 1908 to 1917.* A similar table shewing the average assets of the banks for the June quarters of each of the years 1908 to 1917 is shewn below.

**AVERAGE ASSETS OF BANKS IN THE COMMONWEALTH FOR THE QUARTER ENDED 30th JUNE, IN THE YEARS 1908 to 1917.**

Year.	Coined Gold and Silver and other Metals.	Gold and Silver in Bullion or Bars.	Landed and other Property.	Notes and Bills of other Banks.	Balances Due from other Banks.	All other Debts Due to the Banks. (a)	Total Assets.
	£	£	£	£	£	£	£
1908	23,578,293	1,353,267	4,938,212	889,377	1,131,612	101,647,044	133,537,805
1909	24,943,910	1,353,933	4,852,471	932,354	1,153,611	98,481,421	131,717,700
1910	28,826,729	1,322,899	4,919,991	973,161	1,343,669	101,371,817	138,758,266
1911	32,330,705	1,140,065	4,937,437	1,279,714	1,698,097	118,179,425	159,565,443
1912	27,581,368	1,104,644	4,956,593	1,168,958	1,761,701	129,197,992	165,771,256
1913	30,133,187	1,118,879	4,983,882	1,334,182	3,211,812	123,772,972	164,554,914
1914	35,385,924	1,024,100	4,592,951	1,785,498	4,737,862	127,922,971	175,449,306
1915	33,888,106	1,015,017	5,064,575	1,671,105	4,070,229	148,603,014	194,312,046
1916	26,957,576	843,214	5,237,167	1,756,796	5,526,231	179,232,575	219,553,559
1917	21,685,410	1,156,033	5,288,199	2,035,297	5,429,884	176,739,172	212,333,995

(a) Including Government and Municipal securities, and Australian notes.

As the table shews, the increase in the total amount of assets is partly due to advances, and, to a lesser extent, to an increase in the "balances due." The marked advance in the item "all other debts" in the year 1915 was due to the large expansion of the Australian note issue, owing to the war. The decline in 1917 was due to a fall in the advances, which was not quite balanced by the rise in Government securities. The banks have materially assisted the Federal Government in its war finance by advancing £10,000,000 in gold, receiving in return an equivalent amount in Australian notes, which they undertook not to present for payment until the termination of the war.

**5. Percentage of Coin, Bullion, and Australian Notes to Liabilities at Call.—**

(i.) *Commonwealth.* Although it is not strictly correct to assume that the division of deposits into those bearing interest and not bearing interest would in every case coincide with a division into fixed deposits and current accounts, the division, in default of a better one, must be adopted, and in the following table "liabilities at call" are therefore understood to include the note circulation of the banks and the deposits not bearing interest. From 1912 onwards, however, the former item has steadily decreased.

**PERCENTAGE OF COIN, BULLION, AND AUSTRALIAN NOTES TO LIABILITIES AT CALL, COMMONWEALTH BANKS, 1908 to 1917.**

Year.	Liabilities at Call.			Coin, Bullion, and Australian Notes.		Percentage to Liabilities at Call.
	£			£		%
1908 ... ..	49,551,675			24,931,560		50.31
1909 ... ..	50,323,261			26,297,843		52.26
1910 ... ..	58,982,344			30,149,628		51.12
1911 ... ..	65,945,355			33,470,770		50.76
1912 ... ..	65,945,825			34,120,831		51.74
1913 ... ..	62,381,748			36,105,775		57.88
1914 ... ..	70,502,271			41,446,540		58.79
1915 ... ..	75,656,505			55,376,352		73.19
1916 ... ..	93,079,493			58,312,009		62.65
1917 ... ..	105,635,767			53,777,126		50.91

It would appear from the figures just given that the banks generally consider it advisable to hold rather more than half the amount of liabilities at call in coin and bullion. In the two years 1913 and 1914 the ratio rose to more than four-sevenths, and in 1915 to nearly three-fourths. The large rise in 1913 was due to a decrease in the deposits, coupled with a simultaneous advance in coin, bullion, and Australian notes. The result of over 73 per cent. for 1915 was abnormal, and was due to the rise in the holdings of Australian notes, which are being held in excess of requirements. The subsequent fall is due partly to an increase in the deposits, and partly to a diminution in the holding of gold coin.

(ii.) *Queensland Treasury Notes.* No bank notes are issued by any of the banks in Queensland, where a Treasury note took the place of bank notes from 1893. These Treasury notes are disregarded in the quarterly statements of the banks; according to Treasury returns the amount outstanding on 30th June, 1917, was £27,369. Under the Australian Notes Act, previously referred to, the issue of notes by a State is now prohibited.

(iii.) *States.* The proportion of coin, bullion and Australian notes to liabilities at call varies considerably in the different States, and is generally highest in Western Australia, and lowest in Queensland. A table is appended shewing the percentage for each State for the quarter ended 30th June in each of the years 1908 to 1917:—

**PERCENTAGE OF COIN, BULLION, AND AUSTRALIAN NOTES TO LIABILITIES AT CALL, COMMONWEALTH BANKS, 1908 to 1917.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	All States.
	%	%	%	%	%	%	%	%
1908 ...	47.70	54.68	41.09	45.63	76.09	40.06	...	50.31
1909 ...	50.38	56.57	39.68	46.90	83.29	41.48	...	52.26
1910 ...	51.33	51.66	39.78	48.27	81.09	37.77	...	51.12
1911 ...	52.28	45.05	43.60	51.64	86.55	35.13	16.27	50.76
1912 ...	50.79	50.42	47.53	56.98	72.82	44.63	32.95	51.74
1913 ...	51.93	59.87	54.18	70.75	94.23	47.23	20.98	57.88
1914 ...	57.66	55.16	47.85	74.93	102.60	50.04	19.53	58.79
1915 ...	66.50	69.13	63.82	115.07	139.21	68.90	20.80	73.19
1916 ...	56.02	62.94	56.78	72.93	127.61	72.55	13.40	62.65
1917 ...	49.34	49.51	46.71	54.11	80.41	62.89	11.50	50.91

**6. Deposits and Advances.—(i.) Total Deposits.** The total amount of deposits held by the banks shews a steady advance during the period under review, although there was a slight check in the advance during 1913.

## TOTAL DEPOSITS IN COMMONWEALTH BANKS, 1908-17.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	N. Ter.	All States.
	£	£	£	£	£	£	£	£
1908	43,616,984	37,538,722	15,328,056	8,644,346	4,894,639	3,671,641	...	113,694,388
1909	44,626,194	38,611,731	16,138,931	9,727,879	4,987,894	3,665,626	...	117,758,255
1910	50,018,885	41,809,708	17,420,034	10,782,890	6,129,668	3,729,951	...	129,891,136
1911	55,222,458	46,363,615	19,633,309	11,128,300	7,280,392	3,759,486	59,350	143,446,910
1912	58,229,571	48,453,808	20,311,907	11,600,180	6,900,758	4,236,207	74,166	149,806,597
1913	57,282,179	47,690,128	21,504,588	11,714,785	6,350,055	5,188,274	97,559	149,827,568
1914	62,927,433	52,027,824	24,244,483	12,243,015	6,858,956	5,415,462	132,382	163,854,555
1915	68,170,388	54,159,707	27,369,725	11,857,003	7,539,468	5,710,106	172,939	174,979,336
1916	80,046,047	59,280,709	25,648,722	13,631,827	8,070,380	6,042,451	220,494	192,940,630
1917	84,049,266	65,241,651	29,215,467	15,812,959	8,519,498	5,966,908	324,639	209,130,388

(ii.) *Deposits per Head of Population.* To shew the extent to which the population makes use of the banking facilities afforded to it, a table is given hereunder shewing the amount of total deposits per head of mean population for each of the years 1908 to 1917. The figures must not be taken as representative of the savings of the people, as a large proportion of the deposits is non-interest-bearing and therefore presumably used in the business of the banks' customers, together with a small part of the interest-bearing deposits.

## DEPOSITS PER HEAD OF POPULATION IN COMMONWEALTH BANKS, 1908-17.

Year.	N.S.W.			Victoria.			Q'land.			S. Aust.			W. Aust.			Tasmania.	Northern Territory.	All States.						
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.			
1908	27	15	6	30	6	8	27	15	0	22	14	11	19	0	8	19	12	10	...	27	3	5		
1909	28	0	4	30	14	0	28	8	6	24	17	5	19	0	4	19	6	1	...	27	12	8		
1910	30	13	5	32	14	9	29	11	6	27	1	2	22	14	10	19	11	0	...	29	16	5		
1911	33	9	1	35	1	10	32	2	2	27	3	7	25	11	0	19	7	7	17	17	0	32	1	8
1912	34	15	5	35	11	1	32	13	0	27	14	10	23	9	2	21	17	11	22	16	8	32	8	1
1913	31	14	9	34	6	10	33	1	3	27	1	8	20	6	11	26	15	0	26	17	10	31	6	0
1914	34	18	10	37	5	4	36	14	11	28	17	2	22	12	6	28	0	0	36	7	8	34	4	7
1915	36	8	10	37	18	6	39	16	2	26	19	0	23	7	2	28	12	5	41	9	1	35	6	8
1916	42	19	0	42	0	6	37	9	1	31	6	3	25	11	8	30	9	7	45	10	9	39	5	5
1917	44	19	7	46	10	3	42	17	8	36	15	8	27	12	2	30	15	2	64	7	1	42	14	3

(iii.) *Total Advances.* In the quarterly statements furnished by the banks the column headed "all other debts due to the banks," which usually average about 75 per cent. of the total assets, is made up of such miscellaneous items as bills discounted, promissory notes discounted, overdrafts on personal security, overdrafts secured by deposit of deeds or by mortgage, etc. The quarterly returns furnished to the Commonwealth Statistician in 1908 and 1909 provided for a division of the amounts contained under this heading into a number of sub-headings, but all the banks were not in a position to make the necessary division, so that under present circumstances it is impossible to separate these items, and the total amounts contained in the column must, therefore, be treated as advances. The following table shews the totals for each State during the years 1908 to 1917. It will be noted that between the pair of consecutive years 1908-9 and 1912-13 there was a marked decrease in the advances. In each case this was roughly concurrent with a slackening in the increase of deposits, and was due partly to this slackening, and partly to international causes. The fall in 1917 was due to the fact that the banks were not called upon to finance the harvest, this being undertaken by the Imperial Government.

## ADVANCES BY COMMONWEALTH BANKS, 1908-17.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Northern Territory.	All States.
	£	£	£	£	£	£	£	£
1908	37,948,889	33,254,780	15,245,537	5,805,575	5,581,001	3,008,237	...	100,844,019
1909	34,853,220	31,455,141	14,499,669	5,699,546	5,384,518	2,715,648	...	94,607,742
1910	34,809,345	33,064,881	14,167,480	6,426,809	5,889,061	2,732,645	...	97,060,221
1911	39,001,933	35,792,928	15,639,657	8,018,597	7,327,529	2,796,045	2,085	108,578,774
1912	43,575,784	37,843,369	17,765,880	8,565,340	8,360,993	2,857,565	3,755	118,972,677
1913	41,740,849	35,914,898	16,748,341	7,893,585	8,124,242	3,056,852	2,279	113,481,046
1914	43,423,580	35,667,449	17,114,230	8,142,197	8,024,452	3,132,988	4,314	115,509,210
1915	45,325,098	35,233,268	17,304,016	8,078,242	8,503,033	3,880,489	8,332	117,312,478
1916	50,443,748	41,990,188	18,456,103	10,156,148	9,414,042	2,871,661	4,141	133,336,031
1917	48,592,808	36,929,442	17,753,800	8,459,562	9,057,389	2,988,916	5,935	123,787,852

(iv.) *Proportion of Advances to Deposits.* The percentage borne by advances to total deposits shews to what extent the needs of one State have to be supplied by the resources of another State, and where the percentage for the Commonwealth as a whole exceeds 100 (as it did in the early years of the century), the banks must have supplied the deficiency from their own resources, or from deposits obtained outside the Commonwealth. The following figures shew, however, that the banking business of the Commonwealth has been self-contained during the period under review :—

**PERCENTAGE OF ADVANCES TO TOTAL DEPOSITS, COMMONWEALTH BANKS,  
1908 to 1917.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	All States.
	%	%	%	%	%	%	%	%
1908 ...	87.00	88.59	99.46	67.16	114.00	81.93	...	88.70
1909 ...	78.10	81.47	89.84	58.59	107.95	74.08	...	80.84
1910 ...	69.59	79.08	81.33	59.60	96.07	72.99	...	74.74
1911 ...	70.63	77.20	79.66	72.06	100.65	74.37	3.51	75.69
1912 ...	74.83	78.10	87.47	73.84	121.16	67.46	5.06	79.42
1913 ...	72.87	75.31	77.88	67.38	127.94	58.92	2.34	75.74
1914 ...	69.01	68.55	70.59	66.48	116.99	57.85	3.26	70.49
1915 ...	66.46	65.05	63.22	68.13	112.78	50.45	7.82	67.04
1916 ...	63.02	70.83	71.96	74.50	116.65	47.52	1.88	69.11
1917 ...	57.81	56.60	60.77	53.50	106.31	50.09	1.83	59.19

**7. Clearing Houses.**—The Sydney Banks' Exchange Settlement and the Melbourne Clearing House, at which two institutions settlements are effected daily between the banks doing business in New South Wales and Victoria respectively, publish figures of the weekly clearances effected. From these figures it appears that in 1917 the total clearances in Sydney amounted to £444,533,000, and in Melbourne to £377,031,000. These figures represent an increase for Sydney of £22,162,000 on those for 1916, and for Melbourne of £19,513,000. Owing to the different distribution of the banking business in the two cities these figures do not, however, afford a fair comparison of the volume of banking business transacted in Sydney and Melbourne. For Adelaide the clearances in 1917 totalled £83,866,000, an increase for the year of £12,433,000. Returns for all Australian Clearing Houses for the last six years are shewn in the following table :—

**YEARLY TOTAL OF BILLS, CHEQUES, etc., PASSED THROUGH AUSTRALIAN  
CLEARING HOUSES, 1912 to 1917.**

Year.	Sydney.	Melbourne.	Brisbane.	Adelaide.	Perth.
	£	£	£	£	£
1912 ...	330,621,000	303,462,000	73,233,000	74,924,000	...
1913 ...	348,741,000	297,256,000	80,273,000	75,475,000	...
1914 ...	353,068,000	299,668,000	84,925,000	70,031,000	...
1915 ...	357,803,000	299,295,000	96,291,000	60,950,000	...
1916 ...	422,371,000	357,788,000	100,064,000	71,433,000	40,366,000
1917 ...	444,533,000	377,301,000	119,501,000	83,866,000	41,370,000

### § 3. Companies.

**1. General.**—Returns in regard to registered companies are defective, and, with few exceptions, are not available for Tasmania. They embrace (a) Returns relating to Trustees, Executors and Agency Companies; (b) Returns relating to Registered Building and Investment Societies; and (c) Returns relating to Registered Co-operative Societies.

**2. Trustees, Executors and Agency Companies.**—Returns are available of eight Victorian, two New South Wales, one Queensland, three South Australian, one Western Australian, two Tasmanian companies, and two with head offices in New Zealand. The

paid-up capital of these nineteen companies amounted to £582,405; reserve funds and undivided profits to £511,775; other liabilities, £182,424; total liabilities, £1,276,604. Among the assets are included:—Deposits with Governments, £245,077; other investments in public securities, fixed deposits, etc., £221,421; loans on mortgage, £138,436; property owned, £442,224; other assets, £229,446. The net profits for the year were £82,325, and the amount of dividends and bonuses £50,723. Returns as to the amount at credit of estates represented by assets are available for only eleven companies, the total shewn being £48,768,602.

Probably about £20,000,000 would have to be added to this amount for the remaining seven companies, so that the total amount would not be far short of £70,000,000. None of these companies receives deposits, and advances are only made under exceptional circumstances, and to a very limited extent, the total so shewn in the last balance-sheets being but £93,967.

**3. Registered Building and Investment Societies.**—Returns have been received of a total of 201 societies, viz., 117 in New South Wales, 31 in Victoria, 12 in Queensland, 24 in South Australia, 13 in Western Australia, and 4 in Tasmania. The balance-sheets cover various periods ended during the second half of 1916 and the first half of 1917, so that the returns may be assumed to correspond roughly to the financial year 1916-17. The liabilities of the societies are stated as follows:—

#### LIABILITIES OF REGISTERED BUILDING AND INVESTMENT SOCIETIES, 1916-17.

State.	Paid-up Capital or Subscriptions.	Reserve Funds.	Deposits.	Bank Over-drafts and other Liabilities.	Total Liabilities.
	£	£	£	£	£
New South Wales	1,537,548	(a)	488,051	186,581	2,212,180
Victoria ...	1,316,145	332,877	796,325	118,831	2,564,178
Queensland ...	490,640	43,895	102,180	35,509	672,224
South Australia ...	514,481	14,691	1,197	19,219	549,588
Western Australia	132,299	138	33,744	19,103	185,284
Tasmania ...	105,059	54,036	151,059	6,982	317,136
Total ...	4,096,172	445,637	1,572,556	386,225	6,500,590

(a) Included in paid-up capital or subscriptions.

The assets of the companies for the same period were as follows:—

#### ASSETS OF REGISTERED BUILDING AND INVESTMENT SOCIETIES, 1916-17.

State.	Advances on Mortgage.	Landed and House Property, Furniture, etc.	Cash in Hand and on Deposit and other Assets.	Total Assets.
	£	£	£	£
New South Wales ...	1,867,105	(a)	345,075	2,212,180
Victoria ...	2,088,476	469,403	64,874	2,622,753
Queensland ...	638,071	14,187	27,796	680,054
South Australia ...	535,492	3,211	24,657	563,360
Western Australia ...	179,305	207	5,772	185,284
Tasmania ...	278,409	7,990	30,737	317,136
Total ...	5,586,858	494,998	498,911	6,580,767

(a) Included with other assets.

Statistical information, so far as is available, is furnished in the following table :—

### REGISTERED BUILDING AND INVESTMENT SOCIETIES, 1916-17.

Particulars.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	Q'wth.
Number of societies ... ..	117	31	12	24	13	4	201
Number of shareholders ... ..	(a)	7,650	4,582	8,962	3,505	1,723	(b)26,423
Number of shares ... ..	(a)	(a)	711,743	24,455	9,961	11,350	(c)757,509
Number of borrowers ... ..	(a)	10,043	4,783	2,792	1,256	1,413	(b)20,217
Income for year from interest ... ..	125,679	174,366	48,050	28,925	(d)	20,328	397,348
Working expenses for year ... ..	101,818	70,257	9,730	7,488	3,496	3,914	196,703
Amount of deposits during year ... ..	221,211	607,283	27,460	2,903	58,557	31,795	949,209
Repayment of loans during year ... ..	223,762	540,588	101,904	74,658	46,548	58,267	1,045,727
Loans granted during year ... ..	304,466	369,093	61,307	76,735	49,021	43,788	904,410

(a) Not available. (b) Exclusive of New South Wales. (c) Exclusive of New South Wales and Victoria. (d) Included in repayment of loans.

4. **Registered Co-operative Societies.**—Returns are available of 116 societies, of which 46 were in New South Wales, 49 in Victoria, 5 in Queensland, 7 in South Australia, and 9 in Western Australia. As in the case of Building and Investment Societies, so in the case of Co-operative Societies the balance-sheets cover various periods ended during the financial year 1916-17. The liabilities of the 116 societies are shewn in the following table :—

### LIABILITIES OF REGISTERED CO-OPERATIVE SOCIETIES, 1916-17.

State.	Paid-up Capital.	Reserve Funds.	Bank Over-drafts and Sundry Creditors.	Other Liabilities, Profit and Loss Account, &c.	Total Liabilities.
New South Wales ... ..	£ 274,409	£ 156,468	£ (a)	£ 168,254	£ 599,131
Victoria ... ..	102,973	38,804	123,925	57,636	323,338
Queensland ... ..	(b)	(b)	(b)	(b)	10,399
South Australia ... ..	159,967	12,935	16,123	37,973	226,998
Western Australia ... ..	14,380	2,208	33,482	49,475	99,545
Total ... ..	551,729 (c)	210,415 (c)	173,530 (c)	313,338 (c)	1,259,411

(a) Included in other liabilities. (b) Not available. (c) Exclusive of Queensland.

The assets of the societies are shewn hereunder :—

### ASSETS OF REGISTERED CO-OPERATIVE SOCIETIES, 1916-17.

State.	Stock and Fittings.	Cash in Hand and Sundry Debtors.	Freehold and other Property and other Assets.	Total Assets.
New South Wales ... ..	£ 470,264	£ 112,728	£ 16,139	£ 599,131
Victoria ... ..	135,176	139,174	76,675	351,025
Queensland ... ..	11,828	5,846	4,573	22,247
South Australia ... ..	168,334	35,795	28,386	232,515
Western Australia ... ..	83,181	14,897	1,467	99,545
Total ... ..	868,783	308,440	127,240	1,304,463

The following table gives statistical information, so far as available :—

### REGISTERED CO-OPERATIVE SOCIETIES, 1916.

Details.	N.S.W.	Vic.	Q'land.	S.A.	W A.	C'wth. (a)
Number of societies on 31st December, 1916 ...	46	49	5	7	9	116
Total No. of members on 31st December, 1916 ...	38,370	13,132	17,716	13,270	1,750	84,238
Total income for year 1916 ...	£ 1,837,683	833,358	16,498	454,729	142,762	3,285,030
Working expenses for year ended 31st December, 1916 ...	£ 1,736,778	125,787	15,161	75,499	142,093	2,095,318

(a) Exclusive of Tasmania.

## § 4. Savings Banks.

1. **General.**—The total number of savings banks, with their branches and agencies, in the Commonwealth, nearly approximates to that of ordinary banks, and at the middle of 1917 numbered 2227, distributed as follows:—New South Wales, 639; Victoria, 470; Queensland, 466; South Australia, 308 (exclusive of school penny savings banks); Western Australia, 195 (exclusive of school penny savings banks); and Tasmania, 149.\* These figures are exclusive of the recently-established Commonwealth Savings Bank, except in the State of Tasmania, in which the Commonwealth Savings Bank absorbed the State Savings Bank.

In the following tables the figures for all the States except Tasmania refer to financial years ended 30th June. In the case of Tasmania figures for the two joint-stock savings banks are made up to the last day of February in each year. In the case of the Commonwealth Bank, figures are made up to the 30th June, 1917.

2. **Depositors.**—The total number of depositors, *i.e.*, of persons having accounts open, not of those making deposits, in each of the last ten years is shewn in the following table :—

### NUMBER OF DEPOSITORS IN SAVINGS BANKS, 1907-8 to 1916-17.

Year.	N.S.W.	Victoria. (a)	Q'land.	S. Aust. (a)	W. Aust. (a)	Tasmania.	All States.
1907-8 ...	421,928	511,581	100,324	174,289	72,178	55,620	1,335,920
1908-9 ...	436,029	532,425	106,627	187,482	77,748	58,145	1,398,456
1909-10 ...	460,251	560,515	114,720	201,275	86,166	60,646	1,483,573
1910-11 ...	498,658	595,424	127,219	216,480	99,017	63,314	1,600,112
1911-12 ...	544,023	641,736	139,091	232,971	111,078	67,105	1,736,004
1912-13(b) ...	619,224	703,084	168,438	251,963	121,201	70,402	1,934,312
1913-14(b) ...	693,618	735,400	201,163	267,805	134,510	76,000	2,108,496
1914-15(b) ...	755,835	781,490	229,023	282,169	144,777	80,446	2,273,740
1915-16(b) ...	806,882	821,208	249,235	299,308	157,355	86,489	2,420,477
1916-17(b) ...	872,351	869,058	281,585	319,960	172,084	91,680	2,606,718

(a) Inclusive of depositors in penny savings banks.  
Commonwealth Savings Bank.

(b) Inclusive of

The subjoined table shews the above figures in relation to the population of the States; it must, of course, be borne in mind that savings bank accounts are not restricted to the adult population, but that it is, on the contrary, a very usual practice to open accounts in the names of children. Even so, the proportion is a large one, amounting in the case of the Commonwealth to about one-half, and rising in Victoria to five-eighths, and in South Australia to about three-quarters. In the case of this table and the one that follows, it may be pointed out that as it is possible for the same person to have accounts in both Commonwealth and State Savings Banks, the figures given are perhaps slightly in excess of the truth.

\* Latest figures available.



## DEPOSITORS IN SAVINGS BANKS PER 1000 OF POPULATION, 1907-8 to 1916-17.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
1907-8 ...	270	415	184	462	284	293	321
1908-9 ...	275	426	191	481	299	303	330
1909-10 ...	285	439	199	508	324	314	343
1910-11 ...	303	458	212	528	358	327	362
1911-12 ...	325	471	224	553	378	347	380
1912-13(a) ...	342	506	257	581	386	362	403
1913-14(a) ...	373	517	296	607	415	386	428
1914-15(a) ...	404	548	332	637	449	405	459
1915-16(a) ...	434	584	362	690	500	438	494
1916-17(a) ...	467	620	413	744	557	478	532

(a) Inclusive of Commonwealth Savings Bank.

3. **Deposits.**—The total amount of deposits in the savings banks of the six States reaches the large sum of one hundred and seven million pounds, and would no doubt be even larger if the banks did not restrict interest-bearing deposits to certain limits. It must be remembered that though not granting facilities to draw cheques, the Australian savings banks practically afford the small tradesman all the advantages of a current account, in addition to which they also allow him interest on his minimum monthly balance, instead of charging him a small fee for keeping his account, as the ordinary banks do. The rates of interest allowed, and the limits of interest-bearing deposits, are as follows:—New South Wales, Government Savings Bank,  $3\frac{1}{2}$  per cent. up to £500; Victoria,  $3\frac{1}{2}$  per cent. on first £350, and on deposit stock up to £1000; Queensland,  $3\frac{1}{2}$  per cent. up to £1000; South Australia,  $2\frac{1}{2}$  per cent. on accounts closed during the year, and 4 per cent. up to £350 on accounts remaining open; Western Australia,  $3\frac{1}{2}$  per cent. from £1 to £500, and 3 per cent. from £500 to £1000; also 4 per cent. on deposit stock up to £1000; Hobart Trustees' Savings Bank, 4 per cent. up to £300. Launceston Trustees' Savings Bank, 4 per cent. up to £150, and Commonwealth Savings Bank, 3 per cent. up to £300. The savings banks of five of the States—New South Wales, Victoria, Queensland, South Australia, and Western Australia—have, for the further benefit of depositors, entered into a reciprocity arrangement, under which money deposited in one State may be drawn out in another State, even by telegraph. The two Savings Banks in New South Wales amalgamated on 1st May, 1914. The Act of amalgamation provided for interest at the rate of  $3\frac{1}{2}$  per cent. on the accounts carried to the combined institution. If the rate of interest to Government Savings Bank depositors should fall subsequently below 3 per cent., the transferred accounts of the old Barrack Street Bank were to receive a preferential rate of interest of  $\frac{1}{2}$  per cent. Otherwise their accounts will never receive less than  $3\frac{1}{2}$  per cent.

The table below shows the total amounts at credit of depositors in each of the last ten years:—

## DEPOSITS IN SAVINGS BANKS, 1907-8 to 1916-17.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
	£	£	£	£	£	£	£
1907-8 ...	17,530,157	13,428,576	4,921,881	5,820,344	2,885,463	1,560,951	46,147,472
1908-9 ...	18,805,082	14,101,710	5,158,219	6,347,271	3,059,738	1,605,919	49,077,939
1909-10 ...	20,150,574	15,417,888	5,622,986	6,791,320	3,481,764	1,652,966	53,117,498
1910-11 ...	22,453,924	17,274,423	6,376,969	7,435,772	4,092,504	1,760,090	59,393,682
1911-12 ...	25,361,338	19,662,465	7,342,811	8,248,396	4,408,320	1,933,448	66,956,778
1912-13(a) ...	28,862,592	22,232,196	8,668,284	8,766,182	4,682,738	2,036,211	75,248,203
1913-14(a) ...	32,363,069	24,533,519	10,166,946	9,366,490	4,932,895	2,178,305	83,541,224
1914-15(a) ...	35,562,649	26,996,025	11,972,965	9,595,156	5,149,536	2,301,336	91,577,667
1915-16(a) ...	37,363,272	28,789,426	12,938,636	10,035,036	5,338,009	2,534,266	96,998,645
1916-17(a) ...	40,836,747	31,581,266	14,725,959	11,351,343	5,846,109	2,695,274	107,036,698

(a) Inclusive of Commonwealth Savings Bank.

A comparison between the tables shewing the number of depositors and the amount of deposits reveals the fact that the average amounts to the credit of each depositor are considerably larger in some States than in others; in other words, that in one State a comparatively larger proportion of the population makes use of the savings banks, and that the natural result is a smaller amount to the credit of the individual depositor. Within the same State there is little variation in the figures from year to year.

#### AVERAGE AMOUNT PER DEPOSITOR IN SAVINGS BANKS, 1907-8 to 1916-17.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States..
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1907-8 ...	41 10 11	26 5 0	49 1 2	33 7 11	39 19 6	28 1 4	34 10 10
1908-9 ...	43 11 2	26 9 9	48 7 6	33 17 1	39 7 1	27 12 5	35 4 1
1909-10 ...	43 15 8	27 10 1	49 0 4	33 14 10	40 8 2	27 5 1	35 16 1
1910-11 ...	45 0 7	29 0 3	50 2 6	34 7 0	41 6 7	27 16 0	37 2 4
1911-12 ...	46 12 4	30 12 9	52 15 10	35 8 1	39 13 9	28 16 3	38 11 4
1912-13(a) ...	46 12 2	31 12 5	51 9 3	34 15 10	38 12 9	28 18 4	38 18 0
1913-14(a) ...	46 13 2	33 7 2	50 10 10	34 18 10	36 13 6	28 13 3	39 12 4
1914-15(a) ...	47 1 0	34 10 11	52 5 7	34 0 1	35 11 5	28 12 2	40 5 7
1915-16(a) ...	46 6 1	35 1 2	51 18 3	33 10 6	33 18 6	29 6 0	40 1 6
1916-17(a) ...	46 16 10	36 6 9	52 5 10	35 9 5	33 19 0	29 7 10	41 1 3

(a) Inclusive of Commonwealth Savings Bank.

The average amount deposited per head of population shews a satisfactory increase during the period under review. Since 1907-8 it has practically doubled itself, the figures for South Australia being particularly noticeable.

#### SAVINGS BANKS DEPOSITS PER HEAD OF POPULATION, 1907-8 to 1916-17.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States..
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1907-8 ...	11 4 6	10 17 10	9 0 4	15 8 5	11 6 9	8 4 8	11 1 9
1908-9 ...	11 17 5	11 5 6	9 5 2	16 6 0	11 15 8	8 7 6	11 11 11
1909-10 ...	12 9 8	12 1 6	9 14 7	17 2 8	13 2 1	8 11 2	12 5 8
1910-11 ...	13 13 2	13 5 6	10 12 11	18 2 7	14 15 8	9 1 9	13 8 5
1911-12 ...	14 11 7	14 10 5	11 11 8	19 8 11	14 11 7	10 3 6	14 8 4
1912-13 ...	15 19 0	15 19 10	13 4 2	20 4 3	14 17 8	10 9 4	15 13 4
1913-14 ...	17 8 7	17 5 1	14 19 6	21 4 0	15 4 6	11 1 5	16 19 6
1914-15 ...	19 0 1	18 18 6	17 7 2	21 13 6	15 19 4	11 12 0	18 10 0
1915-16 ...	20 1 0	20 9 6	18 16 5	23 2 11	16 19 3	12 16 8	19 16 1
1916-17 ...	21 19 5	22 11 2	21 19 0	26 5 9	18 18 7	13 9 10	21 17 7

4. **Annual Business.**—The annual volume of business transacted by the Australian savings banks is very large when compared with the total amount of deposits. This is mainly due to the fact already pointed out that many accounts are used as convenient current accounts. Thus, during the last year of the period under review, the total amount deposited and withdrawn (exclusive of interest added) amounted to about 156 per cent. of the total amount of deposits at the end of the previous year, while the amount at credit of depositors (inclusive of interest added) increased by only about 10 per cent. during the same year. The following table shews the business transacted during the year 1916-17:—

## SAVINGS BANKS TRANSACTIONS DURING THE YEAR 1916-17.

State.	Total Deposits at End of Year 1915-16.	Amounts Deposited during Year 1916-17.	Interest Added during Year 1916-17.	Total.	Amounts Withdrawn during Year 1916-17.	Total Deposits at End of Year 1916-17.
	£	£	£	£	£	£
N.S. Wales ...	37,368,272	30,666,334	1,308,386	69,337,992	23,501,245	40,836,747
Victoria ...	28,789,426	24,906,653	966,028	54,662,107	23,080,841	31,581,266
Queensland ...	12,938,636	10,158,275	440,913	23,537,824	8,811,865	14,725,959
South Australia ...	10,035,036	6,785,290	377,428	17,197,754	5,846,411	11,351,343
West. Australia ...	5,338,009	4,637,158	175,740	10,150,907	4,304,798	5,846,109
Tasmania ...	2,534,266	1,773,655	84,609	4,392,530	1,697,256	2,695,274
Total ...	96,998,645	78,927,365	3,353,104	179,279,114	72,242,416	107,036,698

5. **Commonwealth Savings Bank.**—The Savings Bank department of the Commonwealth Bank started operations in Victoria on 15th July, 1912, in Queensland on 16th September, 1912, in the Northern Territory on 21st October, 1912, and in the States of New South Wales, South Australia, and Western Australia on 13th January, 1913. Business is being transacted on the usual Savings Bank lines, interest at the rate of 3 per cent. per annum being allowed on deposits up to £300. Extensive use is being made of the country post-offices as local agencies, the several States having received notice that their Savings Banks would have to be removed from the post-offices by the end of 1912.

For further particulars concerning the Commonwealth Bank, see Official Year Books Nos. 6-10.

The following table shews for each State the number of depositors, and the amount at credit on 30th June, 1917, in the Commonwealth Savings Bank :—

## COMMONWEALTH SAVINGS BANK AS AT 30th JUNE, 1917.

Locality.	Number of Depositors.	Amount at Credit.
		£
New South Wales ... ..	115,434	3,787,557
Victoria ... ..	74,416	2,924,271
Queensland ... ..	57,193	2,151,145
South Australia ... ..	25,312	1,042,853
Western Australia ... ..	30,162	1,025,661
Tasmania ... ..	43,952	1,204,737
Northern Territory ... ..	1,866	102,348
Papua ... ..	736	27,200
London ... ..	7,773	177,075
Total ... ..	356,344	12,442,847

## § 5. Life Assurance.

1. **General.**—Under section 51 of the Commonwealth Constitution Act, the Commonwealth Parliament is empowered to legislate in regard to "insurance, other than State insurance; also State insurance extending beyond the limits of the State concerned." With the exception of Act No. 12 of 1905, "an Act relating to assurance on the lives of children by life assurance companies or societies," no legislation relating to life assurance has been passed by the Commonwealth Parliament, and life assurance companies carry on their business under State laws where such laws are in existence, or otherwise under the provisions of various companies' or special Acts. A Royal Commission consisting of the Honourable J. H. Hood, one of the judges of the Supreme Court of Victoria, and G. H. Knibbs, Esq., C.M.G., Commonwealth Statistician, was, however,

appointed in 1908, "to inquire into and report upon the law relating to and the methods of operating, Fire, Life, Industrial, and other Insurance in Australia." The Commission was originally required to report the result of its inquiry before the 30th June, 1909. A progress report was issued before that date, and the time for the final report extended to the 30th June, 1910. The report relating to Life Assurance was published on 15th March, 1910, and that relating to Fire Insurance on 15th October, 1910. On the conclusions contained in these reports future Commonwealth legislation will probably be based. In fact, a bill embodying some of the conclusions was introduced into the Federal Parliament on 20th December, 1912, but, owing to lack of time, did not reach its second reading. An additional report on Social Insurance was prepared by the Commonwealth Statistician and issued on 9th September, 1910.

Returns for the year 1916 have been directly collected from life assurance societies by the Commonwealth Statistician, with results which are in the main satisfactory. Figures for 1916 refer to business in the Commonwealth only, and do not include New Zealand business.

**2. Companies Transacting Business in the Commonwealth.**—The total number of companies at present established in the Commonwealth is nineteen, of which the following nine have their head offices in New South Wales:—The Australian Mutual Provident Society, the Mutual Life and Citizens' Assurance Company Limited, the City Mutual Life Assurance Society Limited, the Australian Metropolitan Life Assurance Company Limited, the People's Prudential Assurance Company Limited, the Life Insurance Company, the Assurance and Thrift Association Limited, the Co-operative Assurance Company Limited, and the Australian Provincial Assurance Association Limited. The Standard Life Association Limited is now omitted, since a controlling interest in it has been purchased by the Colonial Mutual Life Assurance Society, and almost all its policyholders have transferred themselves to the latter corporation. The Mutual Life and Citizens' Assurance Company Limited was formed in 1908 by the amalgamation of the Mutual Life Association of Australasia and the Citizens' Life Assurance Company Limited. During 1910 it increased in size by amalgamating with the Australian Widows' Fund Life Assurance Society Limited, which is therefore no longer included in the list of independent corporations. Five companies have their head offices in Victoria, viz.:—The Australian Alliance Assurance Company, the National Mutual Life Association of Australasia Limited, the Victoria Life and General Insurance Company, the Colonial Mutual Life Assurance Society Limited, and the Australasian Temperance and General Mutual Life Assurance Society Limited. The head office of the Provident Life Assurance Company is in New Zealand, and that of the Liverpool and London and Globe Insurance Company in England. The remaining three societies belong to the United States, viz.:—The Equitable Life Insurance Society of the United States, the Mutual Life Insurance Society of New York, and the New York Life Insurance Society.

Most of the Australian companies are purely mutual; the following, however, are partly proprietary, the figures in brackets representing the shareholders' capital paid up:—The Victoria Life and General (£40,000), Mutual Life and Citizens' (£200,000), Metropolitan (£11,744), Prudential (£10,000), Life Insurance Company (£44,000), Assurance and Thrift (£17,684), Co-operative Assurance (£56,254), and Australian Provincial Association (£75,345). Of foreign companies transacting business in the Commonwealth, the Liverpool and London and Globe, the Provident, and the Equitable are partly proprietary, the shareholders' capital amounting to £265,525, £21,000, and £20,550 respectively.

**3. Ordinary and Industrial Business.**—Of the societies enumerated in the preceding paragraph, the following seven in 1916 transacted both ordinary and industrial business:—The Australian Mutual Provident Society, the Mutual Life and Citizens' Assurance Company Limited, the Australasian Temperance and General Mutual Life Assurance Society Limited, the Australian Metropolitan Life Assurance Company Limited, the Colonial Mutual Life Assurance Society, the Life Insurance Company, and the Co-operative Assurance Company.

The People's Prudential Assurance Company Limited and the Provident Life Assurance Company formerly restricted their operations to industrial business, but have now established an ordinary department.

The remaining nine societies transacted ordinary life assurance business only, with the exception of those companies which have fire and accident branches, etc.

It has been attempted in this section to keep returns relating to ordinary and to industrial business apart, so far as it is possible to do so, and figures relating to companies whose head offices are in New Zealand or in Europe or America refer to the Australian business only of those companies.

**4. Ordinary Business: Australian Business in Force, 1916.**—The subjoined table shows the ordinary life business in force at the latest dates available in the nineteen societies conducting operations in the Commonwealth:—

**ORDINARY LIFE ASSURANCE.—AUSTRALIAN BUSINESS IN FORCE, 1916.**

Society.	Policies in force, exclusive of Annuities.	Amount Assured, exclusive of Bonus Addition, etc.	Annual Premium Income, exclusive of Annuities.
	No.	£	£
Australian Mutual Provident Society ...	260,888	71,610,135	2,314,368
Mutual Life and Citizens' Assurance Company Limited ...	95,861	17,306,552	594,703
City Mutual Life Assurance Society ...	25,838	4,160,598	166,721
Australian Metropolitan Life Assurance Company ...	3,918	412,952	17,554
Australian Alliance Assurance Company ...	232	96,072	3,507
National Mutual Life Association of Australasia ...	81,371	18,496,437	681,246
Victoria Life and General Insurance Company ...	61	41,198	747
Colonial Mutual Life Assurance Society ...	30,989	5,478,201	188,240
People's Prudential Assurance Company ...	3,772	272,694	(a)24,597
Australasian Temperance & General Mutual Life Assurance Society ...	45,773	5,005,415	200,704
Liverpool and London and Globe Insurance Company (Life Branch) ...	284	106,491	3,200
Provident Life Assurance Company ...	520	64,978	2,277
Life Insurance Company ...	2,932	522,696	(a)28,095
Assurance and Thrift Association Limited ...	942	182,328	7,238
Co-operative Assurance Company ...	566	126,395	(a)5,393
Australian Provincial Assurance Association Limited ...	5,149	918,161	43,317
Equitable Life Assurance Society of United States ...	4,530	1,475,161	56,157
Mutual Life Insurance Society of New York ...	3,302	1,251,596	36,872
New York Life Insurance Society ...	4,964	2,056,868	73,756

(a) Including industrial.

**5. Industrial Business: Australian Business in Force, 1916.**—Similar information in regard to the industrial business of the nine societies transacting that kind of business is given in the following table:—

**INDUSTRIAL ASSURANCE.—AUSTRALIAN BUSINESS IN FORCE, 1916.**

Society.	Policies in Force.	Amount Assured.	Annual Premium Income.
	No.	£	£
Australian Mutual Provident Society ...	123,089	4,453,658	253,014
Mutual Life and Citizens' Assurance Company ...	244,481	4,518,825	243,445
Australian Metropolitan Life Assurance Company ...	30,085	797,375	42,481
Colonial Mutual Life Assurance Society ...	64,257	1,486,209	96,822
People's Prudential Assurance Company ...	5,747	120,834	(a)
Aust. Temperance and General Mutual Life Ass. Society ...	196,202	4,070,558	286,023
Provident Life Assurance Company ...	10,573	267,798	12,417
Life Insurance Company ...	3,456	85,961	(a)
Co-operative Assurance Company ...	3,508	93,246	(a)

(a) Included in ordinary.

**6. Receipts and Expenditure of Assurance Societies, 1916.—(i.) Ordinary Business.**

The following returns refer to the Australian business of all societies doing business in the Commonwealth. The People's Prudential Assurance Company, whose accounts do not distinguish between revenue and expenditure on account of ordinary and industrial business, has been included among the companies doing industrial business.

**ORDINARY LIFE ASSURANCE.—AUSTRALIAN RECEIPTS AND EXPENDITURE, 1916.**

Society.	Receipts.	Expenditure.	Excess Receipts (Addition to Funds).
	£	£	£
Australian Mutual Provident Society ...	3,717,024	2,541,979	1,175,045
Mutual Life and Citizens' Assurance Company ...	895,650	602,011	293,639
City Mutual Life Assurance Society ...	254,825	148,818	106,007
Australian Metropolitan Life Assurance Company ...	20,650	10,103	10,547
Australian Alliance Assurance Company ...	6,525	23,693	(a) 17,167
National Mutual Life Association of Australasia ...	1,073,463	588,789	484,674
Victoria Life and General Insurance Company ...	4,807	21,057	16,250
Colonial Mutual Life Assurance Society ...	321,504	200,764	120,740
Aust. Temperance & General Mutual Life Ass. Socy.	257,321	139,536	117,785
Liverpool and London and Globe (Life Branch) ...	3,200	11,784	8,584
Provident Life Assurance Company ...	2,280	847	1,433
Life Insurance Company(b) ...	28,035	19,486	8,549
Assurance and Thrift Association Limited ...	10,116	6,426	3,690
Co-operative Assurance Company(b) ...	12,370	10,953	1,417
Australian Provincial Assurance ...	44,501	35,514	8,987
Equitable Life Assurance Society ...	83,273	110,931	(a) 27,658
Mutual Life Insurance Society of New York ...	48,070	72,824	(a) 24,754
New York Life Insurance Society ...	82,542	92,894	(a) 10,352

(a) Decrease. (b) Including Industrial.

(ii.) *Industrial Business.* A similar return for those societies which transact industrial business is given below. The figures for the Prudential, as stated above, are included therein.

**INDUSTRIAL LIFE ASSURANCE.—AUSTRALIAN RECEIPTS AND EXPENDITURE, 1916.**

Society.	Receipts.	Expenditure.	Excess Receipts (Addition to Funds)
	£	£	£
Australian Mutual Provident Society ...	300,023	102,503	197,520
Mutual Life and Citizens' Assurance Company ...	301,367	194,627	106,740
Australian Metropolitan Life Assurance Company ...	34,857	44,146	(a) 9,289
Colonial Mutual Life Assurance Society ...	99,896	68,099	31,797
People's Prudential Assurance Company ...	27,236	19,665	7,571
Aust. Temperance & General Mutual Life Ass. Soc. ...	318,625	191,344	127,281
Provident Life Assurance Company ...	12,893	10,159	2,734

(a) Decrease.

**7. Liabilities and Assets of Assurance Societies, 1916.**—The liabilities of the Australasian societies consist mainly of their assurance funds; as already mentioned, only nine of the societies are partly proprietary, viz., the Mutual Life and Citizens', with a paid-up capital of £200,000; the Metropolitan, with a paid-up capital of £11,744; the Prudential, with a paid-up capital of £10,000; the Victoria Life and General, with a paid-up capital of £40,000; the Provident, with a paid-up capital of £21,000; the Life Insurance Company, with £44,000; the Assurance and Thrift, with £17,684; Co-operative Assurance Company, with £56,254; and the Australian Provincial with £75,345. With

the exception of the Victoria, the Life Insurance, Assurance and Thrift, and Australian Provincial, this paid-up capital belongs in every case to the industrial branch of the respective societies. The capital of the Provident (£21,000) is held in New Zealand, that of the Liverpool and London and Globe (£265,525) in England, and that of the Equitable Life (£20,550) in the United States. None of these three amounts appears, therefore, in the two subjoined tables, where the capital of the Australian societies is included with the assurance funds. The assets consist mainly of loans on mortgage and policies, Government, municipal, and similar securities, shares, freehold property, etc. As in some cases the Australian liabilities exceed the Australian assets, it may be pointed out that this table should be read in connection with the table on page 832, which sets out the total assets. Loans on personal security are granted by only very few of the Australian societies.

(i.) *Ordinary Business.* The following table shows the liabilities and assets of the societies transacting ordinary life business :—

**ORDINARY LIFE ASSURANCE.—AUSTRALIAN LIABILITIES AND ASSETS, 1916.**

Society.	Liabilities.			Assets (c)		
	Total Funds including Paid-up Capital.	Other Liabilities.	Total.	Loans on Mortgages and Policies.	Securities, Freehold Property, etc.	Total.
	£	£	£	£	£	£
Australian Mutual Provident Society(a) ...	30,045,947	618,976	30,664,923	14,287,965	13,425,239	27,713,204
Mutual Life and Citizens' Assurance Co. ...	(b)	(b)	(b)	3,418,294	3,510,965	6,929,259
City Mutual Life Assurance Society	926,043	60,943	986,986	546,201	440,785	986,986
Australian Metropolitan Life Assurance Co.	76,693	1,090	77,783	12,290	65,493	77,783
Australian Alliance Assurance Company	95,140	13,864	109,004	46,354	62,650	109,004
National Mut. Life Assoc. of Australasia ...	7,928,596	131,187	8,069,783	5,328,507	2,731,276	8,059,783
Victoria Life and General Insurance Co. ...	100,089	14,308	114,397	8,200	106,196	114,396
Colonial Mutual Life Assurance Society ...	2,971,007	106,123	3,077,130	1,107,582	1,969,548	3,077,130
Aust. Temp. & Gen. Mut. Life Assur. Soc.(a)	1,992,379	90,037	2,082,406	754,383	1,328,023	2,082,406
Liverpool & London & Globe (Life Branch)	(b)	(b)	(b)	(b)	(b)	(b)
Provident Life Assurance Company	5,598	32	5,630	10	170	180
Commonwealth Life Insurance Co. ...	44,000	964	44,964	4,681	40,283	44,964
Assurance and Thrift Association Limited	38,301	2,216	40,517	32,096	7,243	39,339
Co-operative Assurance Co. (a) ...	56,254	2,419	58,673	13,906	44,767	58,673
Australian Provincial Assur. Assocn. Ltd.	84,332	3,295	87,627	1,550	86,077	87,627
Equitable Life Assurance Society ...	168,976	535	169,511	171,117	390,786	561,903
Mutual Life Insurance Society of New York	(b)	(b)	(b)	171,382	65,303	236,685
New York Life Insurance Society ...	773,000	10,015	783,015	118,294	31,926	150,220

(a) Including industrial business. As the business of these three societies is mainly ordinary life business they have been included in this table. (b) Not available. (c) Several life offices have a considerable portion of their assets invested outside the Commonwealth (see table on the next page).

(ii.) *Industrial Business.* As stated in the footnote to the preceding table, the Australian Mutual Provident Society, the Australasian Temperance and General Mutual Life Assurance Society, and the Co-operative Assurance Company, which transact a certain amount of industrial business, but whose business is mainly ordinary life business, have been included with those societies doing only ordinary life business. On the other hand, the People's Prudential Assurance Company, in whose case industrial business greatly predominates over ordinary life business, has been included in the following table. Incomplete as the table is, it shews that the funds appropriated to industrial business are very insignificant in comparison with those pertaining to ordinary life business. Taking the table in conjunction with the statements of revenue and expenditure, the question may well be asked whether in the case of some of the societies, industrial business is worth catering for at all.

## INDUSTRIAL LIFE ASSURANCE.—AUSTRALIAN LIABILITIES AND ASSETS, 1916.

Society.	Liabilities.			Assets.		
	Total Funds, including Paid-up Capital.	Other Liabilities.	Total.	Loans on Mortgages and Policies.	Securities, Freehold Property, etc.	Total.
	£ (b)	£ (b)	£ (b)	£	£	£
Mutual Life & Citizens' Assurance Company				96,635	2,288,193	2,384,828
Australian Metropolitan Life Assurance Co.	63,970	4,274	68,244	2,075	66,169	68,244
Colonial Mutual Life Assurance Society ...	160,421	2,127	162,548	2,186	156,938	159,124
People's Prudential Assurance Company (a)	61,448	51	62,029	46,010	16,019	62,029
Provident Life Assurance Company	8,773	73	8,846	21	9,025	9,046

(a) Including ordinary business. (b) Particulars not available.

(iii.) *Total Assets.* It has been thought advisable to confine the figures relating to life assurance to business in the Commonwealth. Several of the companies whose head offices are in Australia transact, however, a large amount of business elsewhere, viz., in New Zealand, in South Africa, and in the United Kingdom, while in the case of the foreign companies, the Australian business is insignificant compared with that done elsewhere. Particulars as to this foreign business of both Australian and foreign companies will be found in "Finance Bulletin, No. 10," and a short table only is inserted here, shewing the total assets of the various companies, so that the deficiencies in the Australian assets shewn in the previous tables for those companies doing business elsewhere may not be misunderstood:—

## TOTAL ASSETS OF ASSURANCE COMPANIES, 1916.

Society.	Assets.	Society.	Assets.
ORDINARY BUSINESS.			
	£		£
(a) Australian Mutual Provident Soc.	37,337,053	Assurance & Thrift Association Ltd.	40,699
Mutual Life and Citizens' Assur. Co.	9,016,059	(a) Co-operative Assurance Co.	58,673
City Mutual Life Assurance Society...	986,986	Australian Provincial Ass. Assoc. ...	87,627
Aust. Metropolitan Life Assur. Co. ...	77,783	Equitable Life Assurance Society ...	115,812,675
Australian Alliance Assurance Co. ...	109,004	Mutual Life Ins. Society of New York	128,240,255
National Mutual Life Association ...	10,419,345	New York Life Insurance Society ...	178,157,822
Victoria Life and General Insur. Co.	114,396	INDUSTRIAL BUSINESS.	
Colonial Mutual Life Assurance Soc.	4,344,575	Mutual Life and Citizens' Assur. Co.	2,969,514
(a) Aust. Temp. & Gen. Mut. Life A. Soc.	2,342,458	Aust. Metropolitan Life Assur. Co. ...	68,244
Liverpool & London & Globe (Life) ...	14,869,353	Colonial Mutual Life Assurance Soc.	199,350
Provident Life Assurance Company	48,559	(b) People's Prudential Assurance Co.	62,029
Commonwealth Life Insurance Co.	44,963	Provident Life Assurance Company	107,807

(a) Including industrial business. (b) Including ordinary business.

## § 6. Fire Insurance.\*

1. *General.*—Returns as to fire insurance are very defective, and only for Sydney and Melbourne and the country districts of Victoria have some figures been given which are worth reproducing. The Royal Commission mentioned above under "Life Assurance" has reported upon fire insurance matters, and Commonwealth legislation may, therefore, be expected in the future. Legislation concerning fire insurance was, in fact, contained in the bill to which reference has already been made. [§ 5, sub-section 1.]

2. *Sydney.*—Under the Fire Brigades Act 1902 the cost of the Metropolitan Fire Brigade is defrayed by equal payments on the part of the Colonial Treasurer, the municipal councils within the area under the jurisdiction of the Fire Brigades Board, and the insurance companies represented in Sydney. The companies divide their share proportionately to the amount held at risk. Under this arrangement the amount payable by the companies for the year 1909 was £19,100, divided amongst sixty-five companies, of

\* See also Section XXVI., § 5, Fire Brigades.



which not more than six had their head office in Sydney. The amounts thus held at risk at the close of the last four years for which returns are available were, in 1905, £78,108,749; in 1906, £81,364,129; in 1907, £86,563,304; and in 1908, £89,071,992. A new Act, which came into force on the 1st January, 1910, was passed in 1909. This Act substituted a Board of Fire Commissioners for New South Wales for the original Metropolitan Fire Brigades Board, and divided the whole State into eight fire districts for the greater facilitation of working.

**3. Melbourne.**—In Melbourne the Metropolitan Fire Brigades Board assesses the amount payable by the insurance companies on the amount of premiums returned. These premiums for the last four years averaged about £477,000 per annum, while the contributions paid by the companies averaged about £24,000, or about £5 for every £100 of premiums. It may be said, therefore, that the companies have to devote about 5 per cent. of their premium income from metropolitan insurances to the maintenance of the fire brigade.

The value of ratable property is about £7,537,000, and the amounts contributed by the municipalities—as in the case of the insurance companies, one-third of the amount required by the Fire Brigades Board, the remaining one-third being contributed by the State Treasurer—are equal to about  $\frac{7}{8}$ d. per £1 of ratable value. In addition to this contribution, insurance companies doing business in Victoria have to take out an annual license at a cost of  $1\frac{1}{2}$  per cent. of the gross premium income, which is probably equal to about  $1\frac{3}{4}$  per cent. on net income.

**4. Country Districts of Victoria.**—The country districts are divided into nine areas for fire insurance purposes, and the contributions to be paid vary in these areas according to the actual requirements of the Country Fire Brigades Board. The value of ratable property for the last year was slightly over £1,824,000. The premium income of the insurance companies from country business in protected areas during the year 1916 was about £206,000, and the contributions of the companies £5156, equal to rather more than  $2\frac{1}{2}$  per cent. of the premium income.

**5. Brisbane.**—A similar arrangement holds good in Brisbane, under which the cost of the Fire Brigade Board, amounting to about £20,000 per annum, is paid in equal shares by the Government, the Brisbane City Council, and the insurance companies.

**6. Adelaide.**—The Fire Brigades Board of South Australia is incorporated under "The Fire Brigades Act 1904"; "The Fire Brigades Act Amendment Act 1905"; and "The Fire Brigades Act Further Amendment Act 1910." The cost is distributed as follows:—Three-ninths to the Government; four-ninths to the insurance companies; and two-ninths to the municipalities and districts which come under the operations of the board. The insurance companies are assessed in proportion to that portion of their premium incomes derived from the insurance of property (re-insurance within the State excepted) situated within the limits of the municipalities and districts coming under the operations of the board. The respective contributions for 1916 were as follows:—The Government, £7635; the companies, £10,180; the municipalities, £5090.

**7. Perth.**—A District Fire Brigades Bill was reported on by a committee of the Legislative Assembly during 1909, and it was recommended that all brigades should in future be controlled by one board, and that the expense should be met by contributions at the following rate:—By Government, two-eighths; by the municipalities, three-eighths; and by the insurance companies, three-eighths. These provisions were incorporated in an Act, "The District Fire Brigades Act 1909," which was assented to on 21st December, 1909, and came into force on the 1st day of January, 1910. This Act, however, did not apply to Perth or the other districts in which the Fire Brigades Act 1898 was still operative. According to the provisions of the latter Act the expenditure was allocated as follows:—One-ninth to the Government; four-ninths to the insurance companies; and four-ninths to the municipalities. It was provided that the Governor might, at any time, on the petition of the council of any municipality, declare by proclamation that the

provisions of the Act of 1898 should cease to be in force in that municipal district. The whole of the State, however, has now come under the operation of the Act of 1909. The latest valuation of ratable property is £1,583,000, and expenditure £31,550, of which the Government paid £7888, the municipalities £11,831, and the insurance companies, £11,831.

**8. Australian Fire Insurance Business.**—Returns are available shewing the revenue and expenditure, assets and liabilities, and investments of twenty-seven insurance companies having their head offices either in the Commonwealth or in New Zealand. These companies are:—(a) with head office in Sydney—the Australian Mutual Fire Insurance Company, the City Mutual Fire Insurance Company, the Mercantile Mutual Fire Insurance Company, the Queensland Insurance Company Limited, the United Insurance Company, the Insurance Office of Australia Limited, the Federal Mutual Insurance Company of Australia, the Manufacturers' Mutual and the Farmers and Settlers; (b) with head office in Melbourne—the Australian Alliance Assurance Company, the Colonial Mutual Fire Insurance Company, the Victoria Insurance Company, the Victoria General Insurance and Guarantee Company Limited, the Australasian Mutual Insurance Society, the Commonwealth Insurance Company, the Chamber of Manufactures, and the Victoria State Accident Office; (c) with head office in Hobart—the Derwent and Tamar Fire and Marine Assurance Company Limited; (d) with head office in Launceston—the Mutual Fire Insurance Company of Tasmania; (e) with head office in Auckland—the New Zealand Insurance Company, and the South British Fire and Marine Insurance Company of New Zealand; (f) with head office in Dunedin—the National Fire and Marine Insurance Company of New Zealand, and the Standard Fire and Marine Insurance Company of New Zealand; (g) with head office in Wellington—the New Zealand State Fire Insurance Office, and the New Zealand Government Accident; (h) with head office in Christchurch—the Farmers' Co-operative Insurance Association of New Zealand; and (i) with head office in Perth—the Western Australian Insurance Company. As their names imply, the majority of these companies transact marine insurance, and in some cases guarantee and other business, in addition to the fire insurance business, and the returns relating to the latter cannot be separated from the former.

The accounts given hereunder cover two consecutive years, the second year ending at various dates from 31st December, 1915, to 30th April, 1917. The figures for the first year are in brackets.

The premiums, less reinsurances and returns, amounted to £4,015,460 (£3,064,411); losses were £2,060,135 (£1,515,008). Expenses and commission came to £1,187,988 (£994,726), and there was, therefore, a profit on trade operations of £767,337 (£554,677). As, however, interest, rent, fees, etc., amounted to £265,026 (£235,025), the total profit was £1,032,363 (£789,702). Dividends and bonuses came to £300,628 (£268,280). The ratio to premium income of losses was, therefore, 51.30 per cent. (49.44 per cent.), and of expenses and commissions, 29.59 per cent. (32.46 per cent.). The resulting ratio of trade surplus to premium income was 19.11 per cent. (18.10 per cent.).

The paid-up capital of the twenty-seven companies was £2,500,443 (£2,263,221); reserve and reinsurance funds, £3,338,577 (£3,142,006); undivided profits, £540,649 (£315,989). The total paid-up capital and reserves were, therefore, £6,379,489 (£5,721,216). In addition to these liabilities there were others, viz.:—Unsettled losses, £480,077 (£408,018); sundry creditors, £525,402 (£434,102); dividend to pay, £230,818 (£199,140); and, in the case of one company, a life assurance fund, £95,139 (£112,306); thus bringing the total liabilities to shareholders and to the general public up to £7,710,925 (£6,874,782).

The corresponding amount of assets is made up of investments, £6,291,468 (£5,820,934), viz.:—Loans on mortgage, £1,506,161 (£1,561,770); Government securities, debentures, shares, etc., £2,326,587 (£1,836,709); landed and other property, including furniture, £1,193,970 (£1,154,471); fixed deposits, £1,175,676 (£1,184,917); in the case of one company doing a mixed business—loans on its own life policies, etc., £6502 (£6889); other investments, £82,572 (£76,225). The balance of assets consisted of cash in bank, on hand, and bills receivable, £478,882 (£397,617); and sundry debtors, etc., £940,575 (£656,181).

The financial position of the companies is undoubtedly a strong one, owing to the steady accumulation of reserves, and the high ratio borne by capital and reserves to premium income must be a cause of satisfaction to policy holders.

### § 7. Marine Insurance.

No returns are available in regard to Marine Insurance. It may, however, be stated, that the Commonwealth Parliament in 1909 passed an Act (No. 11 of 1909, "An Act relating to Marine Insurance") which was assented to on the 11th November, 1909. This Act materially alters some of the conditions under which marine policies have heretofore been issued.

### § 8. Friendly Societies.

1. **General.**—Friendly societies are an important factor in the social life of the community, as probably nearly one-third of the total population of the Commonwealth comes either directly or indirectly under their influence. Their total membership is about 450,000, but as certain benefits, such as medical attendance and free medicines, and in many cases funeral expenses, are granted to members' families as well as to members themselves, this figure must, even when due allowance is made for young and unmarried members, be multiplied by at least four to arrive at the total number of persons more or less connected with these societies. Legislation has conferred certain privileges on friendly societies, but, on the other hand, it insists on their registration, and it is the duty of the Registrars in the various States, prior to registering a new society, to see that its rules are conformable to the law, and that the scale of contribution is sufficiently high to enable the promised benefits to be conferred on members. Societies are obliged to forward annual returns as to their membership and their finances to the Registrar, and elaborate reports are published in most of the States dealing with the returns thus received.

In the following tables the figures refer to the year 1916.

2. **Number of Societies, Lodges, and Members.**—The total number of societies registered in New South Wales is 67; in Victoria, 46; in Queensland, 20; in South Australia, 17; in Western Australia, 15; and in Tasmania, 18. No total is given of these figures for the Commonwealth, as the societies shewn in one State are in most cases represented in all the other States. The number of different lodges, the total number of benefit members at the end of the year, and their average number during the year are shewn in the following table:—

FRIENDLY SOCIETIES.—LODGES AND MEMBERS, 31st DECEMBER, 1916.

State.	Number of Lodges.	Benefit Members at End of Year.	Average No. of Benefit Mem- bers during Year.
New South Wales	1,883	164,173	162,443
Victoria	1,522	157,889	157,819
Queensland	558	51,130	51,523
South Australia	591	65,540	65,670
Western Australia	287	18,467	18,829
Tasmania	207	22,738	(a) 22,956
Commonwealth	5,048	479,937	479,240

(a) Estimated.

3. **Sickness and Death.**—Sick pay is generally granted for a number of months at full rates, then for a period at half rates, and in some societies is finally reduced to quarter rates. The following table shews the total number of members who received sick pay during the year, the number of weeks for which they received pay in the aggregate, and the average per member sick, and further the number of benefit members who died during the year, together with the proportion of deaths per thousand average members :—

**FRIENDLY SOCIETIES.—SICKNESS AND DEATH, 1916.**

State.	Number of Members who received Sick Pay.	Total Number of weeks Sick Pay granted.	Average No. of weeks per Member sick.	Deaths of Benefit Members and Wives.	Proportion of Deaths to 1000 average Benefit Members.
New South Wales	(a)	(a)	(a)	(a)	(a)
Victoria...	28,189	261,077	9.26	2,411	15.28
Queensland ...	9,100	56,631	6.22	481	9.34
South Australia ...	10,892	110,865	10.18	1,106	16.84
Western Australia	2,715	18,682	6.88	257	13.65
Tasmania ...	3,816	28,619	7.50	310	13.51
Commonwealth	(a)	(a)	(a)	(a)	(a)

(a) Not available.

4. **Revenue and Expenditure.**—The financial returns are not prepared in the same way in each State, but an attempt has been made in the subjoined table to group the revenue under the main headings :—

**FRIENDLY SOCIETIES.—REVENUE, 1916.**

State.	Entrance Fees, Members' Contributions, and Levies.	Interest, Dividends, and Rents.	All other Income.	Total Revenue.
	£	£	£	£
New South Wales ...	508,033	95,103	28,645	631,781
Victoria ...	471,736	124,071	76,843	672,650
Queensland ...	164,629	37,301	...	201,930
South Australia ...	163,696	56,742	46,906	267,344
Western Australia ...	58,144	14,840	22,972	95,956
Tasmania ...	64,830	10,854	10,089	85,773
Commonwealth ...	1,431,068	338,911	185,455	1,955,434

The returns relating to expenditure are more complete than those relating to revenue, and can be shewn in full for every State. The figures shew that the excess of revenue, amounting in the aggregate to £354,862, exclusive of South Australia, was divided amongst the six States as follows:—New South Wales, £93,444; Victoria, £136,391; Queensland, £54,540; South Australia, £52,019; Western Australia, £17,205; and Tasmania, £1263. The revenue exceeded the expenditure by about fifteen shillings per average benefit member, a margin which cannot be called very large.

## FRIENDLY SOCIETIES.—EXPENDITURE, 1916.

State.	Sick Pay.	Medical Attendance and Medicine.	Sums Paid at Death of Members & Members' Wives.	Administration.	All other Expenditure.	Total Expenditure.
	£	£	£	£	£	£
New South Wales	172,497	178,926	61,566	89,630	35,718	538,337
Victoria ...	175,601	166,228	41,829	78,740	73,861	536,259
Queensland ...	41,881	57,702	18,825	28,982	(a)	147,390
South Australia ...	65,964	35,820	32,736	30,538	50,267	215,325
Western Australia	15,034	18,898	7,822	14,547	22,450	78,751
Tasmania ...	19,620	17,525	16,522	11,447	19,396	84,510
Commonwealth	490,597	475,099	179,300	253,884	201,692	1,600,572

(a) Included in "Administration."

It appears from the above figures that sick pay averaged about thirteen shillings and sixpence per week, but, as the returns include pay at half and quarter rates, and as the proportion of these to full rates is not stated, the average given must be taken for what it is worth. Medical attendance and medicine came to about one pound per average benefit member, or to about £5 per member who received sick pay during the year.

5. **Funds.**—The two foregoing tables shew that the surplus of revenue over expenditure in five States amounted to £354,862 for the year, and a small surplus must, of course, result annually in every society which levies adequate contributions to enable it to meet all possible claims. These accumulations of profits are generally invested, and the subjoined table shews for all of the six States the division into invested and uninvested funds:—

## FRIENDLY SOCIETIES.—FUNDS, 31st DECEMBER, 1916.

State.	Invested Funds.	Uninvested Funds.	Total Funds.
	£	£	£
New South Wales ...	1,970,271	(a)	1,970,271
Victoria ...	2,813,881	98,297	2,912,178
Queensland ...	844,860	4,334	849,194
South Australia ...	1,239,766	38,343	1,278,109
Western Australia ...	259,882	9,193	269,075
Tasmania ...	233,526	14,904	248,430
Commonwealth ...	7,362,186	165,071	7,527,257

(a) Included in Invested Funds.

(b) Exclusive of Other Funds, £13,969.

The total funds amounted, therefore, to about £15 14s. Od. per member at the close of the year under review.

## § 9. Probates.

1. **Number of Probates and Letters of Administration and Value of Estates.**—The value of the estates left by deceased persons gives a fair view of the distribution of property among the general population. There occurred in 1916 the deaths of 37,766 adult persons, while the total number of probates and letters of administration granted during the same period was 14,792. It would therefore appear that about two in every

five adults who died during the year were possessed of sufficient property to necessitate the taking out of probate. The details for each State are shewn in the table hereunder:—

### PROBATES AND LETTERS OF ADMINISTRATION, 1916.

State	Number of Estates.			Net Value of Estates.		
	Probates.	Letters of Administration.	Total.	Probates.	Letters of Administration.	Total.
				£	£	£
New South Wales	5,336	(a)	5,336	11,687,910	(a)	11,687,910
Victoria ...	3,568	1,880	5,448	8,917,481	(a)	8,917,481
Queensland ...	764	208	967	2,746,508	295,006	3,041,514
South Australia ...	1,280	381	1,661	1,893,017	138,189	2,031,206
Western Australia	617	340	957	1,462,820	236,477	1,699,297
Tasmania ...	351	72	423	807,513	64,437	871,950
Commonwealth	11,916	2,876	14,792	27,515,249	734,109	28,249,358

(a) Included with Probates.

Intestate estates were placed under the control of the Curator during the year, and unclaimed money paid into Consolidated Revenue. The details for each State are shewn hereunder:—

### INTESTATE ESTATES, 1916.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wlth.
Intestate estates placed under control of Curator during 1916							
Number ...	(a)	730	1,010	189	492	110	(a)
Value ...	£ (a)	30,290	170,036	29,084	17,344	24,222	(a)
Unclaimed money paid into Consolidated Revenue by Curator during 1916	£ 38,920	6,940	3,476	1,851	815	780	52,782

(a) Not available.

## SECTION XXII.

## PUBLIC INSTRUCTION.

## § 1. Evolution of Educational Systems in Australia.

1. *Educational Systems of the States.*—(i.) *Place of New South Wales in Australian Education.* The first settlement in Australia being in New South Wales, it is but natural that Australian education should have had its beginning in that State. In the evolution of educational method and system in Australia, New South Wales also has played a leading part, and has had practically a dominating influence. For that reason an account of the evolution of education in this State contains, as it were, the key to the understanding of the Australian attitude to this question. The subject is dealt with in some detail in No. I. and No. II. issues of the Commonwealth Official Year Book, but it is not proposed to repeat it in the present volume. (See also 2 hereunder.)

(ii.) *Educational Systems of Commonwealth States.*—A more or less detailed account of the origin and development of the primary educational systems of the other States also appears in No. I. and No. II. issues of the Year Book. Later details are given hereunder.

2. *Recent Development in State Educational Systems.*—(i.) *New South Wales.* The year 1913 was an important one in New South Wales educational history, in that it was the first complete year of active operation of the principles laid down in the University Amendment Act and the Bursary Endowment Act of 1912. More extended reference to these Acts will be found later on. It was also remarkable for the reorganisation of technical education on a Trades School basis and of the Superior Schools on a vocational basis. Reference may also be made to the development of the Evening Continuation Schools established in 1911, and to the wide extension of the scheme of school medical inspection. As pointed out in a preceding Official Year Book (see No. VII., page 765), the Education Department instituted a scheme of examinations in 1911 for what were termed respectively the "qualifying," "intermediate," and "leaving" certificate. The first "qualifying" examination was held in March, 1911, the first "intermediate" in November, 1912, and the first "leaving" in November, 1913. The successful students who were awarded exhibitions at the leaving certificate examination took up University studies in the first term of 1914, thus marking the definite linking up of the State School system with the University. Amongst noteworthy features in the year 1914 were the remarkable increase in school population, the establishment of Trade Schools, the expansion of secondary education, and the extension of the scheme of school medical inspection. The travelling hospital and the travelling ophthalmic and dental clinics are rendering splendid service in the remote and sparsely settled districts. During the last few years increasing attention has been devoted to the development of infant schools on the lines of awakening a larger sense of responsibility amongst the young children by giving them a greater measure of freedom. It is recognised by modern educationists that freedom coupled with responsibility lies at the root of all true education.

(ii.) *Victoria.* Under the Amending Education Act of 1910 it is provided that every child must attend school for the full period of eight years between 6 and 14, unless he be given a certificate of education at 13. The schools are open on an average 225 days in each year, and require attendance on all these days, unless reasonable excuse is forthcoming. Provision is made for the mentally deficient. The primary curriculum divides the school life into eight grades, so that a child entering at six years of age will have completed the full course by the time he reaches his fourteenth year. After completion of the elementary school course, the pupil may go on to the Evening Continuation Schools, Higher Elementary Schools, District High Schools, or the Trade Schools. Special schools for feeble-minded children have been established in the metropolis, and an "open air" school for delicate children is in operation at Blackburn. There is also a special school for epileptics at Clayton. Highly encouraging results have been obtained at all these institutions. A Council of Public Education has been appointed to advise on educational matters generally, and particularly in regard to co-ordination. Examinations are held throughout the State for the certificate of merit and the qualifying certificate. The former is granted to pupils who, under prescribed conditions, reach a satisfactory standard in subjects prescribed for Grade VIII., while the latter is awarded to pupils who reach a satisfactory standard in Grade VI. Possession of this certificate enables the holder to enter upon the work of the Higher Elementary or the District High School. Acting on the advice of the Council of Education, the Melbourne University has established a Schools Board. The function of this body is to consider all questions relating to school studies and the inspection and examination of schools. In addition to University representation, there are also on the Board representatives of the Department of Education, the registered Secondary Schools, and the business interests of the community. Being clothed with such wide powers, this Board must of necessity be the chief guiding factor in the development of education in Victoria. During the year 1915 a considerable amount of attention was devoted to the organisation of the elementary schools, especially in connection with the question of retardation, and in regard to the teaching of infants. It is hoped that the greater flexibility in organisation and system of promotions, coupled with special methods of dealing with backward pupils, will tend to considerably lower the retardation percentage. The institution of the uniform school year, the greater powers conferred on the head teachers in regard to the promotion of scholars, the making of the inspector an advisory rather than an examining officer, and the better provision for the practical training of the junior teachers have all been fraught with excellent results. During recent years methods of training teachers have been considerably improved. Formerly there was only one course leading to the trained teacher's certificate. At present four courses are provided—primary, secondary, infant, and short course for teachers of rural schools.

(iii.) *Queensland.* The Amending Act of 1910 introduced several new features into the educational system of Queensland, chief amongst them being—(a) employment of proceeds of sales of land and other school property for school purposes, instead of paying them into Consolidated Revenue; (b) abolition of local contributions; (c) provision of scheme of school certificates to assist in co-ordination of various branches of the system; (d) establishment of compulsory continuation classes; (e) compulsory medical and dental examination; (f) raising the compulsory age to 14 years instead of 12 years; (g) provision for compulsory attendance on every day on which the school is open. The last-mentioned provision has already produced good results in regard to improved attendance. The organisation of the general scheme of education is being systematically developed. State High Schools were inaugurated in February, 1912, and a more liberal scheme of scholarships to secondary schools came into force in 1913. A Teachers' Training College has been established, and greater attention is being given to the development of technical education. Methods of instruction have been brought into consonance with the latest developments under the new syllabus adopted in 1914. During this year also the medical and dental inspection of State School children were considerably extended.



(iv.) *South Australia.* One of the chief events in educational development in South Australia in 1911 was the provision of Evening Continuation Schools, intended to help those who cannot afford to attend the Higher Day Schools. The State has also come into line with the other States in the matter of medical supervision of school children, and a medical officer and two trained nurses have been appointed. The changes introduced at the Teachers' Training College have proved very satisfactory, and the academic teaching at the University is now supplemented by a systematic pedagogic instruction for all classes of teachers. A course of six months' instruction and training for teachers of small schools was introduced in 1913, and has proved of great value. In 1913 the principle was adopted of simultaneous examination of the schools, and granting to teachers the authority to make the promotions of their scholars. An Act to consolidate and amend the law relating to Public Instruction was assented to on the 23rd December, 1915. Under the Amending Act of 1916 all Lutheran Schools are to be taken over by the State. A Superintendent of Technical Education was appointed in 1916.

(v.) *Western Australia.* During 1912 the curriculum of the Primary Schools was remodelled in order to bring it into line with the most up-to-date principles. The work was lightened in directions where experience shewed there was overloading, and efforts were particularly directed toward the removal of the abstract and to the development of the imaginative and constructive throughout all grades. Greater freedom was given for experiment by the teacher, and it is recognised that considerable improvement has resulted. Montessori principles are being increasingly adopted in the teaching of the youngest children. Constructive work is receiving greater attention in all departments, and encouragement is given to original or research work of an elementary character. Four special courses—commercial, industrial, domestic, and professional have been established at the central schools. These schools are practically day continuation schools designed to carry on the education of boys and girls beyond the primary stage. Continued efforts are being made in the direction of bringing about a closer correlation between primary and secondary education. The Modern School at Perth was opened in 1911. In June, 1914, a Goldfields High School was opened at Kalgoorlie, and it is proposed to establish additional schools at the larger country centres, and in the meantime to grant scholarships at the existing High Schools to country children. Continuation classes were held at various centres in 1916, with an enrolment of 2600. Certificates granted to successful students entitle the holder to advanced tuition at the Technical College.

(vi.) *Tasmania.* During the last seven years educational effort in Tasmania has been directed to the development on modern lines of the primary system, the foundation of secondary schools, and the provision of a satisfactory system of training for teachers. Kindergarten, Montessori Schools, and Model Country Schools have been established as adjuncts to the training system, and the courses have been remodelled with a view to providing trained teachers for secondary as well as for primary work. At the High Schools, secondary, commercial, and industrial courses have been established. School hygiene has received especial attention, doctors and nurses have been appointed, and two dental clinics have been established.

(vii.) *Northern Territory.* Although the number of children of school age in the Territory is small, nevertheless ample provision has been made by the Commonwealth Government for their education. Five State schools are in operation, viz., at Darwin, Pine Creek, Brook's Creek, and Daly River in the northern portion, and at Alice Springs in the south. There is a special school for aboriginal and half-caste children at Darwin, also one at Alice Springs. A satisfactory standard is maintained at the schools, but progress is somewhat retarded by irregular attendance. Continuation classes are available at Darwin for cadets in Government employment and for others.

(viii.) *Present Position of State Education in Australia.* Throughout Australia primary education is compulsory and free of charge, while there exists in most of the States a liberal provision of scholarships and bursaries to the Higher State Schools, to the Secondary Schools, and to the Universities. Provided that the requisite standard is reached, it is, of course, permissible for children to receive home tuition, or to attend so-called private schools. Considerable interest is taken in educational matters by the people of the Commonwealth, and within recent years several of the States have sent qualified representatives to inspect and report on the methods adopted in the chief countries of Europe and America. The reports of these Commissioners, especially those of New South Wales, have been widely studied, and various improvements have been made in accordance with their recommendations. The orientation, lighting, and ventilation of school buildings are being modernised. In all of the States periodical medical inspection of the children is in force. (A detailed statement of the work being done in this direction will be found in the chapter dealing with Public Hygiene.) Methods of training teachers are now better developed, and although the "pupil teacher" system with its effects have not been wholly eliminated, it appears to be gradually vanishing. (The methods adopted in the various States for the selection and training of teachers are described in some detail in § 2, 10, hereinafter.) There has been a wider employment of kindergarten principles in the early stages, and the more or less purely abstract teaching of the older days has been largely replaced by concrete methods. Such subjects as nature study, manual training, music, and drawing have received a general impetus. Greater attention has been given to the scientific classification of children. Moreover, as will be seen from the above, and from § 2, 7, the State Education Departments are increasing their activities in the direction of secondary education. Lastly, the system of inspection has been considerably remodelled. Under the old system, the inspector was little more than an examining officer, but, under the present régime, the primary duty of this officer consists in guiding and directing the teaching in accordance with approved methods. [See also § 6, Technical Education.]

(ix.) *Co-ordination of Educational Activities.* As pointed out already, the educational system of New South Wales may now be considered as a more or less homogeneous entity, the various stages succeeding one another by logical gradation from kindergarten to university. In the other States development is proceeding on somewhat similar lines, although in varying degree.

(x.) *Educational Conference.* In May, 1916, the first Conference of Directors of Education in the States of the Commonwealth was held at Adelaide. Amongst important matters discussed thereat may be mentioned:—(a) *Education Reports (Departmental).* In regard to these a decision was arrived at respecting the general principles which should govern the preparation of future reports in order to ensure uniformity so far as the compilation and presentation of statistics relating to enrolment, attendance and finance are concerned. (b) *Raising School-age Limit.* In view of the circumstance that educational expenditure has, up till now, been largely wasted owing to school attendance ceasing at the age of 14 in the case of so many children, it was resolved that legislation is desirable providing for continuous education up to the age of 16, and that attendance be made compulsory except where special exemption could be granted on the ground of educational fitness. (c) *Schools for Defectives.* At present New South Wales and Victoria have a school each of this type, but it was agreed that such schools ought to be provided where required. (d) *Other Special Schools.* Each State is making experiments in regard to the provision of new types of schools giving industrial and secondary instruction, and arrangements were made for the exchange of detailed information in regard to their working. (e) *Sex Physiology.* The Conference was opposed to the introduction of special teaching on this subject, and it was affirmed that efforts should

be directed towards excluding all thought and talk about sex matters from the schools. It was agreed, however, that the Departments should prepare a special leaflet setting forth the duties of parents in this direction.

## § 2. State Schools.

**1. Introductory.**—The State Schools, or, as they are sometimes termed, the “public” schools, of the Commonwealth comprise all schools directly under State control, in contradistinction to the so-called “private” schools, the bulk of which, though privately managed, nevertheless cater for all classes of the community. Information regarding Technical Education is given in § 6.

**2. Enrolment and Attendance.**—The following table shews the number of State Schools, together with the teachers employed and the enrolment and “average attendance” in each State during the year 1916:—

### STATE SCHOOLS, TEACHERS, AND SCHOLARS, 1916.

(COMMONWEALTH.)

State or Territory.	Schools.	Teachers.*	Scholars Enrolled.	Average Attendance.
New South Wales† ... ..	3,188	8,254	272,156	200,695
Victoria ... ..	2,280	6,505	230,182	167,745
Queensland ... ..	1,479	4,017	106,373	84,968
South Australia ... ..	851	1,976	66,982	52,474
Western Australia ... ..	604	1,613	46,049	39,965
Tasmania ... ..	466	1,017	29,098	23,295
Northern Territory ... ..	7	7	286	164
Commonwealth ... ..	8,875	23,389	751,126	569,306

\* Exclusive of sewing mistresses. † Including Federal Territory.

Unfortunately, the schemes of enrolment and of the computation of “average attendance” are not identical in each State, so that the comparisons are imperfect.

The enrolment and average attendance at the State Schools in the Commonwealth are given below for the years 1891, 1901, and for each year of the period 1911 to 1916:—

### ENROLMENT AND ATTENDANCE AT STATE SCHOOLS, 1891 to 1916.

(COMMONWEALTH.)

Year.	Total Population*	Enrolment.	Average Attendance.	Year.	Total Population*	Enrolment.	Average Attendance.
1891	3,240	561,153	350,773	1913	4,872	685,406	515,948
1901	3,825	638,478	450,246	1914	4,941	713,232	544,230
1911	4,569	638,850	463,799	1915	4,932	732,464	557,962
1912	4,733	662,576	496,252	1916	4,875	751,126	569,306

\* In thousands.

**3. Schools in the Federal Capital Area.**—During the year 1916 fourteen State Schools were in operation in the Federal Territory (Yass-Canberra). The pupils enrolled numbered 415 and the average attendance 278. Cost of upkeep in 1916 amounted to £2635. By arrangement with the Federal Government these schools are conducted by the New South Wales Education Department on the same lines as the ordinary State Schools, the Department being recouped for expenditure.

**4. Centralisation of Schools.**—The question of centralisation of schools adopted so successfully in America has received some attention in the Commonwealth, and particularly in New South Wales. It is recognised that a single adequately-staffed and well-equipped central institution can give more efficient teaching than a congeries of small scattered schools in the hands of less highly trained teachers, and the small schools in some districts were therefore closed and the children conveyed to the central institution. The principle was first adopted in New South Wales in 1904, when the conveyance of pupils was authorised in the case of 12 schools. During 1916 over £11,000 was expended in the conveyance of pupils to Central Schools.

**5. Education in Sparsely-settled Districts.**—It has always been the aim of the State to carry the benefits of education into the remotest and most sparsely-settled districts. This is effected in various ways. (i.) By the establishment of Provisional Schools, *i.e.*, small schools in which the attendance does not amount to more than about a dozen pupils, these institutions merging into the ordinary public school list when the attendance exceeds the minimum. (ii.) When there are not enough children to form a provisional school, what are known as Half-time Schools are formed, the teacher visiting them on alternate days. In still more sparsely-peopled districts, an itinerant teacher goes from house to house within a certain radius. Thus, in Queensland during 1916 the 17 itinerant teachers covered 388,700 square miles of country and travelled 50,160 miles to visit 1332 children. In this State also the Education Department has established what are known as Saturday Schools, in which small groups of children in outlying districts are visited by the nearest teacher on Saturdays and receive the benefit of several hours' instruction. These schools, of which there are now ten, have been warmly welcomed in the districts in which they are established, inasmuch as under this system the children "outback" receive a greater amount of instruction than is possible under the system of itinerant teachers. During 1916, the Education Department in Western Australia disbursed £7519 in "driving grants," *i.e.*, sums of money granted to parents whose homes are over three miles from the nearest schools, and who arrange to have their children driven in. In New South Wales, Victoria, Western Australia and Tasmania parents in the thinly-peopled areas are also allowed to club together and build a school, which receives aid from the Government in the form of a yearly subsidy and grant of school material. During 1916 subsidy was paid to 668 schools in New South Wales. (iii.) An experiment on the part of New South Wales, the result of which was awaited with some interest, was the establishment in 1908 of a "Travelling" School. A van was provided in which the teacher travelled, carrying with him a tent for himself and one to be used as a school, together with such books and apparatus as are required in a Primary School. So far very satisfactory results have been attained. Two additional schools of this nature were established in 1914. (iv.) There are also railway camp schools in operation on the sites of extensive railway works. Regulations were framed in Tasmania during 1912, providing for the subsidising of private teachers at a rate not exceeding £5 per pupil in districts too remote or sparsely settled to warrant the establishment of an ordinary Provisional School. The schools of this nature established in 1916 numbered 62, with an enrolment of 759 scholars. During the year the department also paid for the conveyance of 218 children to schools by boat, vehicle, or train. New South Wales and Victoria provide for education, by correspondence, of children in isolated districts.

6. **Evening Schools.**—Evening Public Schools have been in existence for many years in some of the States, but their progress has been uncertain. In New South Wales the 44 Evening Continuation Schools had an average attendance in 1916 of 2008. In Victoria there was only one night school in operation for elementary work during the year. It is stated that future developments in evening instruction will be in the direction of continuation classes. Western Australia has evening continuation classes in the chief centres; the attendance in 1916 numbered 2610. Evening Continuation Schools have been established under regulation in South Australia, and are intended principally to help the working boy to improve his general education and to add to the store of knowledge most useful in his present work.

7. **Higher State Schools.**—(i.) In *New South Wales* public schools, which provided advanced courses of instruction for two years for pupils who have completed the primary course, were classed as *Superior Schools*. These were reorganised in 1913 as Day Continuation Schools, and divided into Superior Commercial Schools, Superior Junior Technical Schools, and Superior Domestic Schools for Girls. At the close of 1916 there were 27 schools in the Commercial group, 22 in the Junior Technical, and 42 in the Domestic group, with an average attendance of 3282 in the sixth and seventh classes. It is believed, however, that greater efficiency could be produced by reducing the number of these schools and establishing Central "Superior Public Schools" instead. Provision has also been made for the more advanced education of children in country centres by the establishment of 20 District Schools. These schools are specially staffed, and undertake the work of preparing students for admission to the training colleges. There are also 19 *High Schools* in the State. These had an enrolment in 1916 of 5228, with an average attendance of 4301. To meet the wishes of representatives of the registered Secondary Schools, the syllabus of the High Schools was amended in 1913, and now offers such a wide range of choice in the selection of subjects that there is no possibility of producing a merely stereotyped uniformity of study. Three "Intermediate" High Schools have been established to meet the growing demand for High School education in the metropolis, and others will be provided during the next few years in the city and in country centres. The average attendance at these schools in 1916 was 530. In accordance with Departmental regulations liberal provision is made for scholarships and bursaries to the higher State Schools. Under the provisions of the University Amendment Act of 1912, 200 exhibitions were awarded in 1916 to successful students at the leaving certificate examinations, and 123 of these were given to pupils attending the State Schools.

The Sydney Grammar School (not a "State" School in the ordinary acceptance of the term), which receives a State endowment of £1500 a year, had, in 1916, a quarterly enrolment of 601 pupils, and an average attendance of 562.

(ii.) In *Victoria*, action was taken in January, 1912, to give effect to the provisions of the Education Act of 1910, with regard to the decentralisation of the system of secondary education. Eighteen Higher Elementary and 28 District High Schools have been established, and, to obviate congestion at the High Schools, Higher Elementary Classes are carried on at seven centres and at six "Central" Schools. The average attendance at the Higher Elementary Schools in 1916 was 1524, of whom 750 were girls, at the District High Schools 5177, of whom 2660 were girls, while 641 boys and 620 girls were receiving secondary teaching in the Central Schools and higher elementary classes. The qualifications for admission to the High Schools and Higher Elementary Schools are that pupils shall not be less than 12 years of age, shall possess the qualifying certificate or its equivalent, and that their parents shall undertake that the children will remain at school for four years. For the first two years there is a common course

for all pupils, thereafter replaced by four special courses :—(1) A preparatory professional course for pupils preparing to proceed to the University, to enter the teaching profession, or to gain a sound general education ; (2) an agricultural course to be taken in agricultural High Schools ; (3) a commercial course ; and (4) a domestic arts course for girls. Parallel with these courses an industrial course has been developed for pupils who intend to enter upon some form of industrial occupation.

Junior Technical Schools have been established apart from the High Schools in Melbourne, Ballarat, Bendigo, and Geelong, and there are schools also at Glenferrie, Collingwood, Sunshine, and Warrnambool.

Scholarships granted by the Department are as follows :—(a) One hundred junior, tenable for four years at a District High School or approved Secondary School, with allowance of £26 per annum for board where required ; (b) Forty senior, tenable four to six years, with allowance of £40 towards expense of course at University ; (c) Fifty junior technical, giving free tuition for two years at a Junior Technical or other approved school, and, in certain cases, board allowance of £26 per annum ; (d) Fifty senior technical, giving free tuition for approved courses at Technical schools, with £30 allowance for day students, and £10 for night students ; (e) Sixty teaching, similar in other respects to junior ; (f) Twenty nominated courses, giving four to six years' free tuition in agriculture, mining, or veterinary science at the University, with allowance in certain cases of £26 per annum.

(iii.) Prior to the year 1912, *Queensland* did not possess any distinctly Secondary Schools under State control, but in February of that year High Schools were opened at Warwick, Gympie, Bundaberg, Mount Morgan, Mackay, and Charters Towers. Tuition at these schools is free, but students must pass a qualifying entrance examination. In smaller centres where an average of not less than 25 qualified pupils can be obtained, secondary tuition is provided at existing State Schools, and this has been arranged for at Brisbane Central (boys), Brisbane Central (girls and infants), Herberton, Childers, Gatton, Dalby, Pittsworth, Roma, Southport, and Cairns. The enrolment at High Schools in 1916 was 734, and the daily attendance 548. There are, moreover, ten Grammar Schools—six for boys and four for girls, each of which is subsidised by the State to the extent of £750 per annum, and in addition receives a payment of £250 per annum for providing five scholarships for State scholars. In order to conserve the interests of children of poor parents, scholarships have been made available at any State High School, Technical School, Grammar School, or approved Secondary School, and allowances are granted up to £30 per annum to students who must live away from home, and £12 to those who live at home. The scholarships to Secondary Schools awarded in 1916 numbered 878. Of these, 201 boys and 135 girls were granted the allowance at £12 per annum, and 70 boys and 51 girls received £30 per annum. There are also 20 University scholarships tenable for three years, carrying an allowance of £52 per annum where the holder has to live away from home, and £26 per annum in cases where the holder can reside at home while taking the University lectures. The enrolment at the Grammar Schools in 1916 was 1636, and the average attendance 1513. Since the year 1909 these schools have been regularly examined by the Inspector-General of the Education Department.

(iv.) *South Australia*. Including the Adelaide High School, there were altogether twenty-three High Schools open in South Australia in 1916, with an enrolment of 2855 students, and a staff of 93 teachers. In addition to giving secondary education, these institutions form a valuable source from which the Department can draw a supply of young teachers. Under existing regulations provision is made for the following scholarships :—(i.) Eight public exhibitions open to boys and girls who have been *bonâ*

*fide* residents of South Australia for two years prior to the competitive examination. The exhibitions are tenable for three years at an approved school or college, carry free tuition and books, and an allowance of £22 per annum when the holder lives away from home. (ii.) Forty exhibitions, tenable for three years at any approved school or college are open to competition by children under 13 years of age in attendance at State Primary Schools. (iii.) Eight senior exhibitions, worth £40 per annum, and four of the value of £20, are tenable at the Adelaide High School or other approved Secondary School, and are open to pupils of any Secondary School. (iv.) Twelve junior exhibitions, eight of £40 and four of £20, tenable for two years at any approved Secondary School, are reserved for pupils of Secondary Schools within a radius of 10 miles of the General Post Office, Adelaide. (v.) Twelve Government bursaries, of which six are reserved for pupils of the High Schools. These are tenable at the University, and the holder receives £20 per annum and free tuition. (vi.) The Government provides £180 per annum to assist students who are unable to attend the University during the day. Each studentship is limited to £10 for science students, and £7 for arts students.

(v.) *Western Australia.* A Modern School, designed to give a four years' course to pupils admitted at about the age of 13 years, was opened in Perth early in 1911. The first two years of the course are to a large extent common to all, but in the final two years specialisation is aimed at, in order to meet the needs of future University students, teachers, agriculturists, scientific and business men; and in the case of girls, to give tuition in domestic economy to those desirous of it. Parents are required to undertake that their children will remain at the school for the full course. At the end of 1916 there were 273 students. No fees are charged at the Modern School. A High School organised on similar lines was opened with 128 pupils in May, 1914, at Kalgoorlie, and at the end of 1916 had 169 pupils. During 1909 the upper classes of schools in the largest centres of population were brought together into central schools, in order to secure more economical and effective teaching, and it is intended that these central institutions shall form the nucleus of future High Schools. Continuation classes were inaugurated in 1911, and were attended at 17 centres in 1916 by about 2600 pupils. The classes are intended to provide some measure of higher education to those who leave school as soon as they reach the compulsory age of 14 years. Admission to these classes is free, but pupils must attend regularly three evenings a week. Evening Schools are held in various parts of the State, but the work carried on is mainly primary. Junior and senior exhibitions were abolished in 1914 and provision made for 10 University exhibitions, each tenable for three years, and valued at £40 per annum for students living at home and £60 in the case of those living away from home.

(vi.) *Tasmania.* Up to the year 1912 the Department confined its efforts to the provision of primary education for the school children in Tasmania. In 1911, however, super-primary classes were formed in the larger schools, with an enrolment in 1911 of 200, and in 1912 of 400 pupils. It was recognised, however, that the previously existing scheme of scholarships and exhibitions was inadequate to meet the demands for higher education. High Schools were therefore opened in January, 1913, at Hobart and Launceston, and intermediate High Schools were opened in 1915 at West Devonport and Burnie. These provide for five classes of pupils—(i.) Those who desire to become teachers; (ii.) University students; (iii.) Commercial; (iv.) Mechanics; (v.) Home duties (girls). The enrolment in 1916 was 707. It is proposed to grant a leaving certificate at the end of a four years' course. The Bursaries Act of 1915 provides for 30 junior and 20 senior bursaries tenable for two years at an approved State School or registered Secondary School. They are valued at £2 per annum for a State School and £12 at a Secondary School, in addition to satisfactory boarding and travelling allowance where required. Four-fifths of the bursaries are awarded to country children. The Tasmanian Education Department scholarship is open for competition to High School pupils under the age of 19 years. The scholarship is valued at £20 per annum, with an allowance of £40 if the student lives away from home while attending the approved University course.

8. **Agricultural Training in State Schools.**—The question of agricultural training in ordinary schools has received considerable attention in *New South Wales*. In 1905 a teacher of school agriculture was appointed to visit schools and districts for the purpose of giving instruction to teachers and scholars in the subject, the officer selected possessing the qualifications of a thorough acquaintance with agricultural work as well as school methods. The Education Department makes grants of seeds of various kinds to schools having gardens, and in some instances has installed windmill plants to provide an adequate water supply. Under the direction of a capable head master, a college has also been opened at Hurlstone, near Sydney, at which practical lessons are given in elementary agriculture, and the institution also serves as a stepping-stone to the Hawkesbury Agricultural College. Scholarships are available to students of the Hurlstone Agricultural High School as it is now called, and these scholarships entitle the holder to a two years' free course at the Hawkesbury institution, with a grant of £1 10s. per annum for text books. The Department has also organised Rural Camp Schools for the purpose of giving teachers and scholars first hand knowledge of country industries.

The subject of Agricultural Colleges and Experimental Farms is dealt with in the section relating to Agriculture. (See page 392.)

In *Victoria*, what are termed Agricultural High Schools have been established at Ballarat, Colac, Leongatha, Mansfield, Mildura, Sale, Shepparton, Wangaratta, Warragul, and Warrnambool. Pupils must be at least fourteen years of age, and have passed beyond the curriculum of the elementary school, or else be able to afford satisfactory proof that they are qualified to profit by the instruction offered. The schools are practically secondary schools with an agricultural bias, and form a link between the rural school and the agricultural college. They are also used as a preliminary stage in the education of boys and girls who wish to become teachers and eventually graduate in the State Training College and the University. At some of the schools short courses in agriculture have been instituted for farmers' sons who have left school. A local council is appointed for each school, and exercises a general oversight over its operations. The experimental plots at these schools have aroused much interest among the farmers from the surrounding districts. A Supervisor of Agriculture reports and gives advice on the teaching of agriculture in the State Schools. A fair number of teachers have gained diplomas in agriculture, and will be in a position to give practical instruction at the High Schools. The elementary principles of agriculture are taught in 755 State Schools. A Horticultural Society has been established in connection with State Schools, and there are 1200 schools in affiliation. The Society has a nursery and distributing centre for plants and seeds at Oakleigh. During 1916, 56 teachers attended a school of horticulture held at this institution.

In *Queensland* the Government provides a small grant to encourage the study of agriculture, horticulture, and kindred subjects in the State Schools, while a departmental teacher of agriculture visits the schools and gives assistance in agricultural, horticultural, and nature study work. Some excellent experimental work has been carried out at a few of the schools, while gardens have been established wherever circumstances permitted. Short courses of instruction for teachers have been instituted at the Gatton College. A large number of teachers have gained a practical knowledge of milk and cream testing, and the subject is now added to the programme of instruction in several of the dairying districts. At Nambour, a Rural School, the first of its type, was opened early in 1917. In addition to the ordinary subjects of the curriculum this school provides for instruction in farming, fruit growing, dairying, etc.

In *South Australia*, the Public Schools' Floral and Industrial Society, founded in 1880, holds annual exhibitions of school work from all parts of the State. In addition, it has for some years undertaken the distribution of flower seeds among school children at a very cheap rate, and has thus fostered the love of horticulture with remarkable



success. A special instructor has been appointed to give assistance to teachers desirous of making their school gardens aid in nature study work. During the year 1916, 410 students received instruction in nature study. Amongst the trainees were students attending the school for Class IX. teachers (small schools), University Training College students, and junior teachers and primary students at Adelaide High School. A seed wheat competition amongst school children inaugurated in 1911 proved very successful, and a second, which was commenced in 1916, will conclude in 1920.

In *Western Australia* an advisory teacher of nature study visits the schools and gives advice in regard to proper methods in horticulture and experimental agricultural work. The number and usefulness of the gardens and experimental plots attached to State Schools shew marked improvement each year. Early in 1914 a school was opened on the Narrogin State Farm. The students are taken directly from the primary schools, and the course of instruction lasts for two years. On its completion students are qualified to enter on the diploma course at the University.

In *Tasmania* the organising teacher of nature study visits and advises the teachers at the State Schools, and also gives addresses and model lessons at the schools of instruction.

**9. Teachers in State Schools.**—The distribution of the teaching staff in the State Schools during the year 1916, including teachers of needlework, was as follows:—

### TEACHING STAFF IN STATE SCHOOLS, 1916.

(COMMONWEALTH.)

State.	Principal Teachers.		Assistants.		Pupil or Junior Teachers.		Sewing Mis-tresses.	Total.		
	Males.	Fem.	Males.	Fem.	Males.	Fem.		Males.	Fem.	Total.
New South Wales	2,454	1,271	1,274	3,182	14	59	115	3,742	4,627	8,369
Victoria ...	1,699	1,100	480	1,449	296	1,481	447	2,475	4,477	6,952
Queensland ...	833	726	398	1,015	422	623	...	1,653	2,364	4,017
South Australia ...	422	458	90	622	82	302	136	594	1,518	2,112
Western Australia	352	304	118	607	44	188	61	514	1,160	1,674
Tasmania ...	161	313	78	190	47	228	2	286	733	1,019
Northern Territory	2	3	...	2	...	...	...	2	5	7
Commonwealth	5,923	4,175	2,438	7,067	905	2,881	761	9,266	14,884	24,150

It will be observed that there is a fairly large number of junior teachers, or pupil teachers, as they are called in some of the States. The pupil teachers, will, however, in time disappear, and their places will be filled by young people who have undergone a course of training in schools specially provided for the purpose. Allusion to the methods of training will be found in the next paragraph.

**10. Training Colleges.**—The development of the training systems of the various States has been alluded to at some length in earlier issues of the *Year Book*. The present position is as follows:—

(i.) *New South Wales.* During 1916, the total number of students in the Blackfriars Training College was 732, women students numbering 550. A branch institution was opened early in 1911 at Hereford House for the training of candidates for the position of teacher or assistant at small country schools, and this was attended in 1916 by 363 students. Several of the larger metropolitan schools are used as practice schools for giving training college students opportunity to acquire practical skill in teaching. At the college a complete set of Montessori apparatus has been prepared for demonstration work on the Montessori principles, and one of the College staff was recently sent to Italy

in order to gain first-hand knowledge of the possibilities of the scheme. Opportunities are also afforded to other members of the teaching staff to visit foreign countries on study leave. The Principal of the Training College is also Professor of Education at the Sydney University. A new Teachers' College within the University grounds is now in course of erection. Up to the year 1913 the limits of accommodation at the Teachers' College were responsible for the employment of a number of untrained junior assistants, but it is now provided that no teacher enters the Service without at least six months' professional training. Schools of instruction for teachers are held each year, the subjects chosen being military drill, swimming, physical training, first-aid work, manual training work, etc.

(ii.) *Victoria.* Candidate teachers in this State are trained in the District High Schools or Agricultural High Schools, the period of probation being supplemented by a course of training for one year in the Senior Training College at Melbourne. A "short course" of training was introduced in 1913 for students who have passed the junior public or an equivalent examination. The course lasts for six months, about half the time being spent at lectures and the rest at practice in teaching. The present Training College dates back to 1874, but during the retrenchment period, viz., from 1893 to 1900, it was closed. The institution was reopened in February, 1900, with an enrolment of fifty-seven students. During the year 1916 over 400 teachers, some of whom were extra-departmental, were brought into contact with the college work. A Training College Hostel has been established, and a Correspondence class formed for country teachers desirous of qualifying for the Infant Teacher's Certificate. The students at the Hostel receive training in domestic economy. Three city and six country practising schools are attached to the Training College, and four infant rooms with attached kindergartens have been specially equipped for the training of infant teachers. The University High School gives secondary teaching practice to both departmental and private students. A remodelled system of training came into force in 1914, providing, amongst other things, for the alteration of the name "Training College" to "Teachers' College," and for the classification of students into three groups, i.e., those training for secondary teachers' certificate, for sub-primary teachers, and for primary teachers.

(iii.) *Queensland.* In connection with the Teachers' Training College opened in Brisbane in 1914, the following scheme has been evolved:—Twenty-five special Teacher scholarships to the University, each with a currency of two years, are to be awarded annually. Living allowances at the rate of £52 per annum and £26 per annum respectively are provided, the former being paid to students living away from home. The University is to provide an Education group of subjects, including Logic, Psychology, and Education. Ten of the scholarships may be carried on for a third year, and five for a fourth year. Practical training is entrusted to a Training Master appointed by the Department. Those who attend the two years' course will be appointed to the Primary Schools, and the graduates from the three and four years' course will be available for High Schools and Secondary Schools. Short courses of training have been instituted for teachers to take charge of small schools, and arrangements have been made to allow an approved number of teachers already in charge of such small schools to obtain the benefit of the training. About 70 short course students are trained each year. In the meantime, young people of both sexes are admitted to the service as pupil teachers at the age of 14 years, and receive training from the principals of the schools to which they are appointed. The schools for infants at Kangaroo Point and Rockhampton have been specially staffed and equipped for training Kindergarten teachers, and Kindergarten methods have been introduced into most of the larger schools. Teachers of small schools are also greatly helped by the inspectors' practical and theoretical instruction in the various districts. During 1916 the inspectors of the Northern, Townsville, Central and Gladstone districts held schools of instruction for the untrained teachers of small schools in their respective districts.

(iv.) *South Australia.* During the year 1910 the system of training in force in South Australia was remodelled and improved. Prior to that year students had devoted themselves chiefly to academic studies, but in 1910 provision was made for increased attention to the theory and practice of teaching. District courses of training were established to prepare teachers for work in primary and infant schools, and an advanced course was outlined for those who will become High School teachers. Each of these courses extends over a year. Students in the primary course who shew special ability may be granted a second year's training. The special course for Secondary Schools will give students an opportunity of obtaining the Diploma of Education. Provision has also been made for a six months' course of training for teachers of provisional schools. There were 37 students in the Training College in 1916. At the Adelaide High School there were 200 students training for teachers at the beginning of 1916, and 142 new candidates were admitted, 107 for one year, and 35 for two years. In December, 1916, 98 students left the school to commence teaching. There were also 236 candidates for the junior teachers' entrance examination, of whom 156 passed. Practice in teaching is gained by the student teachers at the Observation School, which also provides training for teachers qualifying for appointment to provisional schools. A considerable amount of help is given to the teachers of small schools at the periodical "Summer" Schools and "refresher" courses.

(v.) *Western Australia.* A Training College for teachers was opened at Claremont in 1902. The original building provided accommodation for sixty students, but extensions were opened in 1908, and the number in training in 1916 was 134. Two classes of training are provided for—the full course, lasting two years, and a special course of six months. The latter is intended for teachers of small schools in country districts, and the trainees are drawn partly from those already acting as teachers in these schools and partly from outside applicants who pass the necessary qualifying examination. Special practising schools have been established for the proper training in teaching and managing the smaller country schools. Three classes of students are admitted to the full course—(i.) from State or private secondary schools; (ii.) monitors from departmental schools; (iii.) ordinary teachers from the departmental schools. The standard of education required on entering is the school-leaving or matriculation certificate, but a special examination is held for candidates possessing neither. The course is both academic and practical, the former being co-ordinated with the University. As a help in the practical work, there is an adjunct school attached to the college, and several practising schools, two of which are for infants only. At the Claremont Infants' School a room has been set apart for work on Montessori lines. During 1916 schools of instruction for teachers of small schools were held at Toodyay, York, Wickepin, and Pingelly. Each school lasted for a fortnight, and the total attendance numbered 54.

(vi.) *Tasmania.* Consequent on the establishment of State High Schools and a lectureship in Education at the University, the Department has reorganised the scheme of work and raised the standard of entrance to the Training College. The junior teachers will in future receive their education and preliminary professional training in the High Schools and practising schools. From 1917 onwards it is hoped that the bulk of the students will have matriculated, and on entering the college will attend University lectures in Arts and Science, leaving the college staff to devote itself to purely professional training, and instruction in special subjects. Students in training during 1916 numbered 35.

The practical training of students and junior teachers is carried out in Hobart, while the training of candidates for the office of provisional teacher and the preliminary training of junior teachers are undertaken at the East Launceston practising school. Schools of instruction for teachers of small schools are conducted at regular intervals by the inspectors, and practical instruction is given at the Observation and Model schools in Hobart and Launceston.

**11. School Savings Banks.**—Returns shew that these institutions are in existence in three States. In New South Wales, there were 726 banks at the end of 1916, the deposits amounting to £37,097, and withdrawals to £35,099. Since the establishment of the banks in 1887, deposits totalled £562,552, and withdrawals £549,377. Of the latter sum £127,126 was placed to the children's accounts in Government Savings Banks. In South Australia, 496 schools had 23,233 depositors, with £19,479 to their credit; and in Western Australia, there were 382 school banks, with 23,127 depositors and £32,399 to their credit.

**12. Expenditure on State Schools.**—The net expenditure on State education during 1901 and for the five years ended 1916 is shewn below. The figures do not include expenditure on buildings, which is shewn separately in a subsequent table.

**EXPENDITURE ON MAINTENANCE, STATE SCHOOLS, 1901 and 1912-16.**  
(COMMONWEALTH.)

Year.	N.S.W.	Victoria.	Qld.	S. Aust.	W. Aust.	Tas.	Nor. Ter.	C'wealth.
	£	£	£	£	£	£	£	£
1901 ...	623,734	656,907	256,245	152,006	89,694	37,710	...	1,816,296
1912 ...	1,285,410	893,649	393,543	217,874	220,780	86,500	674	3,098,430
1913 ...	1,318,326	975,977	432,751	243,094	258,171	91,513	1,942	3,321,774
1914 ...	1,366,955	995,120	458,466	254,485	290,929	105,147	1,830	3,472,932
1915 ...	1,428,873	1,033,292	462,842	260,279	299,505	110,981	1,246	3,597,018
1916 ...	1,534,186	1,032,708	484,500	268,399	305,180	111,140	1,956	3,738,019

The expenditure per head of average attendance for each of the years given above will be found in the succeeding table.

**COST PER HEAD OF AVERAGE ATTENDANCE, STATE SCHOOLS, 1901 and 1912-16.**  
(COMMONWEALTH.)

Year.	N.S.W.	Victoria.	Qld.	S. Aust.	W. Aust.	Tasmania.	Nor. Ter.	C'with.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1901	4 0 10	4 7 0	3 12 9	3 9 5	5 9 3	2 12 11	...	4 0 8
1912	7 10 4	5 12 1	5 1 9	5 6 8	6 14 0	4 8 5	9 9 10	6 4 11
1913	7 8 1	6 4 2	5 8 3	5 12 3	7 2 5	4 6 5	28 1 1	6 8 9
1914	7 3 9	5 17 0	5 10 1	5 9 11	7 11 1	4 13 2	18 9 8	6 7 7
1915	7 7 1	6 4 0	5 8 9	5 7 4	7 10 0	4 15 4	9 13 2	6 8 11
1916	7 13 0	6 3 1	5 14 0	5 2 4	7 12 8	4 15 5	11 18 6	6 11 4

Expenditure on school buildings in each of the years quoted was as follows:—

**EXPENDITURE ON STATE SCHOOL BUILDINGS, 1901 and 1912-16.**  
(COMMONWEALTH.)

Year.	N.S.W.	Victoria.	Qld.	S. Aust.	W. Aust.	Tasmania	Northern Territory.	C'wealth.
	£	£	£	£	£	£	£	£
1901 ...	57,663	36,040	33,421	13,656	49,073	7,762	...	197,615
1912 ...	287,522	167,657	67,637	40,855	73,920	9,423	2,117	649,131
1913 ...	347,183	158,028	77,715	59,385	61,464	16,456	791	721,022
1914 ...	302,566	198,377	107,113	56,840	36,513	20,233	...	721,642
1915 ...	234,281	315,869	83,159	32,163	51,252	20,640	214	737,578
1916 ...	303,001	220,042	96,397	33,472	24,863	28,793	...	706,568

The net total cost and the net cost per scholar in average attendance during the year 1916 were as follows:—

**NET TOTAL COST, STATE SCHOOL EDUCATION, 1916.**  
(COMMONWEALTH.)

Item.	N.S.W.	Vic.	Q'land.	S. Aust.	W. A.	Tas.	N. T.	C'wealth.
Net cost of education, including buildings ... ..	£ 1,837,187	£ 1,252,750	£ 580,897	£ 301,871	£ 329,993	£ 139,933	£ 1,956	£ 4,444,587
Per scholar in average attendance ... ..	£9 3/1	£7 9/4	£6 16/9	£5 15/0	£8 5/2	£6 0/2	£11 18/6	£7 16/2

The average for the Commonwealth in 1901 was £4 9s. 3d. per scholar in average attendance.

**§ 3. Private Schools.\***

1. **School Teachers, etc., in 1916.**—The following table shews the number of Private Schools, together with the teachers engaged therein, and the enrolment and average attendance in 1916:—

**PRIVATE SCHOOLS, 1916.**  
(COMMONWEALTH.)

State.	Schools.	Teachers.	Enrolment.	Average Attendance.
New South Wales ... ..	701	3,678	67,704	56,318
Victoria ... ..	495	1,900	57,400	48,000
Queensland ... ..	154	868	19,857	16,609
South Australia ... ..	218	736	14,687	10,786
Western Australia ... ..	125	470	11,173	9,807
Tasmania ... ..	86	324	6,753	4,803
Northern Territory ... ..	1	2	76	57
Commonwealth ... ..	1,780	7,978	177,650	146,380

The totals for New South Wales are exclusive of returns from the Sydney Grammar School, which receives a yearly State subsidy of £1500, and which, in 1916, had an enrolment of 601, and an average attendance of 562.

The figures for Queensland include the returns from Grammar Schools, of which there are ten—six for boys and four for girls. These schools are governed by boards of trustees, partly nominated by Government, and partly by the subscribers to the funds. The trustees make regulations regarding the fees of scholars, the salaries of teachers, and generally for the management of the schools. Each school is endowed by the Government at the rate of £750 per annum, together with, in some instances, an additional £250 to provide district scholarships. The total Government aid received in 1916 was £9250. The Grammar Schools are inspected annually by the departmental Inspector-General.

2. **Growth of Private Schools.**—The enrolment and average attendance at Private Schools during 1891, 1901 and in each year of the period 1909 to 1916 are as follows:—

**ENROLMENT AND ATTENDANCE AT PRIVATE SCHOOLS, 1891 to 1916.**  
(COMMONWEALTH.)

Year.	Enrolment.	Average Attendance.	Year.	Enrolment.	Average Attendance.
1891 ...	124,485	99,588	1912 ...	164,085	133,940
1901 ...	148,659	120,742	1913 ...	161,204	132,679
1909 ...	164,428	127,069	1914 ...	162,813	135,141
1910 ...	158,694	129,872	1915 ...	172,957	144,804
1911 ...	160,794	132,588	1916 ...	177,650	146,380

\* Private Schools include all schools not wholly under State control. The term "private" though popularly applied, is, of course, a misnomer.

The small rate of increase in private school enrolment and attendance is due in a large measure to the development of the State educational systems, especially as regards the provision of secondary education.

**3. Registration of Private Schools.**—Until recent years the various State Governments had comparatively little control over privately conducted schools. With the advance of modern educational thought the position is improving, but still leaves much to be desired. It is evident that without a thorough system of registration there will always be a difficulty in regard to enforcing the compulsory clauses of the various Education Acts. Moreover, advanced educational thought demands complete supervision, not only of curricula, but of all matters pertaining to school hygiene.

In New South Wales, under the provisions of the Bursary Endowment Act of 1912, 33 non-State Schools were inspected by the Departmental Inspector of Secondary Education for registration or renewal thereof. It is pointed out by the inspector that the schools obtaining registration under this Act will gain an advantage over non-registered schools which will tend to increase their yearly capital value.

In Victoria, up to the year 1905, no attempt had been made to bring Private Schools under general administrative control, but the Registration of Teachers and Schools Act of 1906, and the Education Act of 1910, established a registration scheme under a special committee. At present, the committee consists of nine members of the Council of Education. Section 60 of the Act of 1910 also empowers the Minister of Education to authorise the inspection of any school (other than a State School) in order to ascertain whether the instruction given is satisfactory. The inspector of registered schools has on several occasions pointed out that there is a fair number of institutions which are very unsatisfactory, both as regards buildings and quality of instruction given therein.

In Queensland, with the exception of the Grammar Schools, which are now examined annually, there is practically no control over the private schools, beyond the fact that they may submit themselves to inspection if so desired, and there is apparently no provision in South Australia for any Government supervision over private school affairs.

In Western Australia, non-Government schools must be declared efficient by the Education Department if attendance at them is to be recognised as fulfilling the requirements of the law, and the school registers must be open to the inspection of the compulsory officers of the Department.

In Tasmania the Education Act requires the teachers of other than State Schools "to furnish during January of each year returns shewing attendances at such schools." Despite the fact that penalties are prescribed for non-compliance with the law, many teachers neglect to return the forms sent out. Provision has been made for registration of private teachers and schools very much on the lines adopted in Victoria. The Act declares that all persons who were employed in a *bona fide* manner for at least three months before 25th October, 1906, were entitled to be registered as teachers without submitting proof of professional qualifications. No person can be registered as a private teacher since July, 1907, unless the Board is satisfied as to his fitness for the work.

**4. German Schools in Australia.**—The accompanying particulars in regard to German Schools in Australia have been extracted from information supplied by the State Education Departments.

*New South Wales.*—In this State there are 3 private schools conducted by German teachers, and attended entirely by children of German descent. The schools are situated at Jindera, near Albury (33 pupils); Trungley Hall, near Temora (36 pupils); and Gidginburg, near Temora (14 pupils). The schools are inspected by the Departmental officers, and school work is conducted in English. The use of German as the language of instruction is not permitted in any school. Trungley Hall and Gidginburg have been gazetted "certified" schools under the provisions of the Public Instruction Amendment Act of 1916.

The scholars attending the following State schools consisted largely of children whose parents were known to be of German descent :—Alma Park, Burrumbuttock (East and North), Gerogery Railway Station and Gerogery West, Glenellen, Hovell, Major's Plains, Jindera, Lavington, Walkyrie, Walla Walla. Many of the scholars at these schools could speak German before they attended school.

*Victoria.*—There are 10 registered private Lutheran schools in Victoria, with an attendance of 307 pupils. In connection with these schools it has been laid down by the Government that the German language is not to be employed in teaching, and books, charts, etc., in German are prohibited. Religious instruction in German is not permitted, and the syllabus of instruction must be on lines laid down by the Education Department, and be such as will promote good citizenship and loyalty to the British Empire. There are no State German schools.

*Queensland.*—There are now no German day schools in operation. In districts where German families form a considerable proportion of the population the children attend the State schools, and, in common with other children, are subject to the conditions imposed by the compulsory clauses of the State Education Act now in force.

*South Australia.*—In the year 1916 there were 52 Lutheran schools in this State, practically all under the control of the Lutheran Church. In many of these schools the teaching was carried on in the German language and English was hardly spoken at all. Religion as taught by the Lutheran Church formed an important part of the instruction.

The Education Act of 1915 provided that teaching should be through the medium of the English language for at least four hours a day. The Education Amendment Act of 1916, however, provided that the Government should take over and carry on all Lutheran schools not earlier than 30th June, 1917, and not later than 31st December, 1917, and that no language but English shall be spoken in the schools. The Act was put into force on the 1st July, 1917.

*Western Australia and Tasmania.*—There are no German schools in either of these States.

#### § 4. Free Kindergartens.

The following information regarding Free Kindergartens in the Commonwealth has been compiled from particulars supplied by the principals of the chief institutions in each State, except in the cases of Victoria and Western Australia, the details for which were furnished by the Education Departments.

##### FREE KINDERGARTENS IN THE COMMONWEALTH, 1916.

State.	No. of Schools.	Average Attendance.	Permanent Instructors.	Student Teachers.	Voluntary Assistants.
New South Wales (Sydney) ...	9	514	16	*52	12
Victoria (Melbourne) ...	26	1,149	52	19	236
(Ballarat) ...	1	46	2	...	16
Queensland (Brisbane) ...	6	189	6	21	6
South Australia (Adelaide) ...	6	200	8	16	...
Western Australia (Perth) ...	2	80	4	9	...
Tasmania (Hobart) ...	2	80	3	3	8
(Launceston) ...	1	44	6	5	3
Total ...	53	2,302	97	125	281

\* Exclusive of 27 Sunday School students and 23 students attending single classes.

It must, of course, be distinctly understood that the information given above refers to institutions under private kindergarten unions or associations, and is exclusive of institutions controlled by the Education Departments of the various States.

## § 5. Universities.

**1. Origin and Development.**—The history of the foundation and progress of the four then existing Australian Universities was traced at some length in Year Books I. and II. In the present volume space will permit of only a very brief reference to the subject.

(i.) *University of Sydney.* The Act of Incorporation of the University of Sydney received Royal Assent on the 1st October, 1850, and the first Senate was appointed on the 24th December of that year. The first matriculation examination was held in October, 1852, when 24 candidates passed the required test, and the formal inauguration ceremony took place on the 11th October of the same year. A Royal Charter was granted to the University on the 27th February, 1858. Women students were admitted in 1881. The passing of the University (Amendment) Act of 1912 marks an important epoch in the development of the educational system of New South Wales. The Act aims at placing the University in a more effective position as the culminating point in a thoroughly co-ordinated system of State education, and it is claimed that the passing of this measure makes the educational system—from the Primary Schools through the Secondary Schools to the Technical Colleges or to the University—form a progressive and continuous whole. Under the new Act the Constitution of the Senate was radically changed, and this body now consists of—four Fellows appointed by the Governor, one elected by members of the Legislative Council, one elected by members of the Legislative Assembly, five representatives of the University teaching staff, ten elected by graduates of the University, and three elected by the aforesaid Fellows. The professorial representatives hold office for two years, and the other Fellows for five years. In addition, it was provided that in view of their distinguished services, the late Chancellor, Sir Normand MacLaurin, and the Vice-Chancellor, Judge Backhouse, should each during his life be a Fellow in addition to the ten Fellows elected by the graduates. The second part of the Act contains a feature of outstanding importance, in that it provides for the allotment of exhibitions in the proportion of 1 for every 500 of the population of New South Wales between the ages of 17 and 20, or in such other ratio as may be determined by Parliament. These exhibitions, which carry exemption from all fees, are not restricted to any particular faculty in the University, and are principally allotted in order of merit as shewn by examinations for leaving certificates at the State Schools. Pupils of registered Secondary Private Schools are also eligible for leaving certificates on the same conditions as those of the State Schools. To gain a leaving certificate a candidate must have satisfactorily completed an approved four years' course of study. Five per cent. of the total number of exhibitions allotted in any year are available for successful candidates at the written examination, even though they be ineligible for a leaving certificate. At the inception of the University there were only three professorships. The present staff consists of 23 professors, including the Director of Military Science, seven assistant professors, and 122 lecturers and demonstrators. There are, in addition, 8 honorary lecturers, various honorary demonstrators, as well as various miscellaneous assistants in laboratories, and three curators of museums.

(ii.) *University of Melbourne.*—This institution was established by Act of Parliament assented to on the 22nd January, 1853, and its first Council was appointed on the 11th April of that year. The foundation stone of the main building was laid on the 3rd July, 1854, and the University was formally inaugurated on the 13th April, 1855. By Royal Letters Patent, issued in 1859, its degrees are, like those of the Sydney institution,



declared of equal status with those of any other University in the British Empire. Women students attended lectures for the first time in 1881. The University, which began in 1855 with Schools of Arts and Laws, has now a staff of 18 professors, 69 lecturers and demonstrators, as well as various assistants. The Conservatorium of Music has a staff numbering 30.

(iii.) *University of Adelaide.* This University was established by Act of Parliament in 1874. Its origin and progress were largely due to the munificence of the late Sir Walter Watson Hughes and Sir Thomas Elder, G.C.M.G., the total gifts of the latter amounting to over £100,000. The academical work of the institution was commenced in March, 1876, when eight matriculated and fifty-two non-graduating students attended lectures. The foundation stone of the University buildings was laid on the 30th July, 1879, and the buildings were opened in April, 1882. In 1881, by Royal Letters Patent, the degrees granted by the institution were recognised as of equal distinction with those of any University in the British Empire. The Elder Conservatorium of Music was opened in 1898. Power was given by Act of Parliament in 1880 to grant degrees to women. At first there were only four professorships in the University, whereas the present staff consists of eleven professors, forty-three lecturers with the necessary complement of demonstrators, etc., while the staff at the Conservatorium, not included in the foregoing figures, numbers fourteen.

(iv.) *University of Tasmania.* The Act to establish the University of Tasmania (Hobart) was assented to on the 5th of December, 1889. At the present time, the institution, which is small but efficient, possesses a staff of six professors, eight independent lecturers, and five miscellaneous assistants. Under Statute dated 13th April, 1905, the Zeehan School of Mines and Metallurgy was affiliated to the University. Tutorial classes have been arranged at Hobart and Launceston, and Extension Committees have been formed in various country centres.

(v.) *University of Queensland.* The Act to establish the University of Queensland was passed in 1909, and the first Senate was appointed on the 14th April, 1910. The University was opened on the 14th March, 1911, when 60 students were matriculated. Provision has been made for a Correspondence Study department in connection with the institution, and at the request of the Brisbane branch of the Workers' Educational Association, weekly lectures are given in History and Economics. At the present time there are four professors, i.e., one each of classics, chemistry, engineering, and for mathematics and physics, with eleven independent lecturers, nine assistant lecturers and demonstrators and five miscellaneous assistants. University extension lectures are delivered at important country centres.

(vi.) *University of Western Australia.* The University of Western Australia was established under an Act which received Royal assent on the 16th February, 1911, and the first Senate was appointed on the 13th February, 1912. There are now professorships in agriculture, biology, chemistry, English, geology, history and economics, mathematics and physics, and mining and engineering, in addition to ten lecturers and demonstrators, and seven miscellaneous assistants, etc. The Chair of Agriculture was endowed by Sir Winthrop Hackett. Students of the Perth Technical School and the Kalgoorlie School of Mines are admitted to the first year examinations in certain subjects provided they have matriculated. The institution was opened in March, 1913.

**2. Teachers and Students of Universities.**—The following table shews the number of professors and lecturers and the students in attendance at each of the Commonwealth Universities during the year 1916:—

## UNIVERSITIES.—TEACHERS AND STUDENTS, 1916.

University.	Professors.	Lecturers.	Students attending Lectures.		
			Matriculated.	Non-matriculated.	Total.
Sydney ... ..	30	122	1,240	420	1,660
Melbourne ... ..	18	69	...	...	1,137*
Adelaide ... ..	11	43	284	207	491†
Tasmania (Hobart) ...	6	8	78	20	98
Queensland (Brisbane)	4	20	160	22	182
West. Australia (Perth)	8	10	157	57	214

\* Exclusive of 160 music students. † Exclusive of 267 music students.

3. University Revenues.—The income of the Universities from all sources during the year 1916 was as follows:—

## UNIVERSITIES.—REVENUE, 1916.

University.	Government Grants.	Fees.	Other.	Total.
	£	£	£	£
Sydney ... ..	54,592	13,707	31,341	99,640
Melbourne ... ..	27,818	37,794	10,052	75,664
Adelaide ... ..	12,467	8,388	6,617	27,472
Tasmania (Hobart) ...	6,650	787	809	8,246
Queensland (Brisbane)	15,000	3,588	5,017	23,605
Western Australia (Perth)	13,500	...	1,641	15,141

The column "Other" includes the receipts from private foundations. The extent to which the Universities have benefited by private munificence will be apparent from the following table:—

## PRINCIPAL PRIVATE BENEFACTIONS TO AUSTRALIAN UNIVERSITIES.

University of Sydney.		University of Melbourne.		University of Adelaide.	
Donor.	Amount.	Donor.	Amount.	Donor.	Amount.
	£		£		£
J. H. Challis ...	250,750	Sir Samuel Wilson	30,000	Sir Thos. Elder ...	98,760
Sir P. N. Russell ...	100,000	James Stewart ...	25,624	Sir W. Hughes ...	20,000
Thos. Fisher ...	30,000	Hon. Francis Ormond	20,000	Hon. J. H. Angas	10,000
Edwin Dalton ...	8,000	John Hastie ...	19,140	R. Barr Smith ...	10,150
Hugh Dixon ...	7,050	Robert Dixon ...	10,837	Other donations ...	19,584
Hon. Sir W. Macleay	6,221	John Dixon Wy-			
Mrs. Hovell ...	6,000	selaskie ...	8,400		
Thos. Walker ...	6,200	David Kay ...	5,764		
Other donations ...	55,980	Henry Dwight ...	5,000		
		Wm. Thos. Mollison	5,000		
		Other donations ...	52,545		
Total	£ 470,201	Total	£ 182,310	Total	£ 158,494

In addition to the sum of £6000 shewn above, the Hon. Sir W. Macleay also presented the Museum of Natural History to the University.

The credit balances of some of the above endowments now amount to very considerable sums. For example, on the 31st December, 1916, the Challis Fund amounted to nearly £316,000, and the Fisher bequest to over £41,000. The cash balance at the end of 1916 on account of all private foundations to Sydney University stood at £565,890. In the case of Melbourne University the Stewart fund on the 31st December, 1916, stood at £30,550, the Hastie at £19,266, and the Dixson fund at £13,627.

In addition to the above there were various other bequests to Sydney University—*e.g.*, collection of Egyptian antiquities, etc., by Sir Charles Nicholson, and Natural History collection by Mr. Geo. Masters, while the building for the Natural History Museum was given by Sir W. Macleay. Numerous prizes and scholarships have also been given to the various colleges. In Melbourne, the Hon. Francis Ormond's benefactions to Ormond College amounted to about £108,000. With a view to advancing the course of education in agriculture, forestry and allied subjects, Mr. Peter Waite transferred to the Adelaide University in 1914 the whole of the valuable Urrbrae estate at Glen Osmond. The estate comprises 134 acres of land with a fine mansion. Private benefactions to the University of Tasmania and the newly-established University of Queensland amount to £3280 and £16,000 respectively. In Western Australia the chair of Agriculture was founded by an endowment of Sir Winthrop Hackett, first Chancellor of the University, who made available also an annual sum of £900 for the establishment of a Department of Agriculture.

**4. University Extension.**—Extension lectures were instituted at Sydney University in 1886, but under a Statute of the Senate, approved of in 1892, a Board was appointed, which was empowered from time to time to recommend to the Senate the names of suitable persons for giving courses of lectures, and to hold examinations in the subjects of the lectures. The Board receives and considers applications from country centres, and makes provision for engaging lecturers and managing the entire business connected with the various courses. The project has only met with fair success, no lectures having been given in some years, but lately there appears to be an awakening of interest in the matter. The Board also arranges for courses of lectures in other States. In 1916 the average attendance at extension lectures in New South Wales was 144.

University extension lectures in Victoria date from the year 1891, when a Board was appointed by the Melbourne University for the purpose of appointing lecturers and holding classes and examinations at such places and in such subjects as it might think fit. Interest in University extension has varied in Victoria, the attendance at the various centres being estimated at 475 in 1916.

The Adelaide University has also instituted short courses of extension lectures in Arts and Science, to which students are admitted on payment of a nominal fee. Public intimation of these lectures is made from time to time during the session. For 1915 a course of nine lectures was provided at the University, and courses are given in various country centres as desired.

The University of Tasmania provides for courses of extension lectures at various centres. Tutorial classes in Economics, History, Philosophy, and Literature are conducted in Hobart, and a class in Economics has been formed at Launceston. Attendance at extension lectures in 1916 numbered 151.

As pointed out previously, a correspondence study department has been inaugurated in connection with the University of Queensland in order to overcome, as far as possible, the difficulties of students who desire to benefit by University teaching, but who for various reasons are unable to attend the lectures. At present the work of this department is confined to the Arts course.

In Western Australia provision has been made for the giving of courses of extension lectures in Perth and suburbs, and also—by arrangement with local committees—in country centres. The professor of agriculture visits the chief farming districts for the purpose of giving lectures to, and holding conferences with the primary producers. Special short courses for farmers are given at the University.

**5. Soldiers' Scholarships at British Universities.**—A scheme has been evolved under which men on active service with the military and naval forces of the Dominions may benefit by the facilities for special education afforded by British Universities and technological institutions. Funds have been made available to allow selected disabled soldiers and sailors to commence work as soon as they are fit to take up their studies. The Earl of Selborne has generously provided a number of scholarships, a large subscription has been allotted from the Kitchener Memorial Fund, and the Rhodes' Trust has set apart several scholarships, some of which have been given to Australians. At present a small number of Australian soldiers are studying at Oxford, Cambridge, and Leeds. The scholarships are of the annual value of £150 to £250, and cover all expenses, including tuition fees and cost of living. They are granted with the proviso that those who hold them will follow up in their future professions and occupations the line of study embraced in the scholarships. The South African Government has offered twenty-five additional scholarships for South Africans, and in view of the possibilities of the scheme it is hoped that endowments will be provided by all the Dominion Governments.

**6. Workers' Educational Association.**—Chiefly as the result of a visit to Australia in 1913 by Mr. Mansbridge, Secretary of the Workers' Educational Association of Britain, a movement has been incorporated having for its object the bringing of the University into closer relationship with the masses of the people, and thereby providing for the higher education of the workers in civic subjects. In New South Wales the Workers' Educational Association was at once formed, and similar branches of the movement have since been established in all the States of the Commonwealth and in New Zealand. The Government of New South Wales granted the University of Sydney the sum of £1000 to initiate the scheme for tutorial classes. In that State the number of classes and study circles had grown by 1918 to between 40 and 50, and the number of students exceeded 1000, while the Government grant has increased to £5150. There are now direct grants from all State Governments except Western Australia, and a University grant in New Zealand. The particulars of grants to classes are as follow:—New South Wales, £5150, 42 classes; Victoria, £1500, 4 classes; Tasmania, £675, 5 classes; South Australia, £1600, 5 classes; Queensland, £300, 5 classes; New Zealand, £1500, 30 classes. The total number of students throughout Australasia is approximately 2000, the greater number of whom are taking three-year courses while working at their daily occupations as artisans and clerical workers. The principal subjects chosen in all States are Industrial History, Economics, Political Science, and Sociology, while Psychology, Philosophy, Literature, and Biology are increasingly selected. Each University co-operates with the W.E.A. in the formation of a joint committee for tutorial classes, which elects tutors and generally supervises the work with the assistance of a University officer with the title of Director of Tutorial Classes. In addition to the longer and more serious courses, a great many preparatory classes and study circles are organised by the association, numerous courses of public lectures are delivered, and educational conferences promoted. In New South Wales the association organised an important representative conference on "Trade Unionism in Australia" in 1915, the report of which has been issued in book form. Another conference on the "Teaching of Sex Hygiene" was held in 1916, the report of which has passed through a large first edition. Steps are now being taken to create a federal organisation of the association. The honorary secretary of the W.E.A. of Australasia is Professor Meredith Atkinson, M.A. (Oxon), Director of Tutorial Classes in the University of Melbourne.

## § 6. Technical Education.

1. **General.**—Although provision has been made in some of the States in respect to many necessary branches of technical education, the total provision made would imply that this branch of education has not been regarded as of great importance. As will be seen later on, the expenditure on technical education for the whole of Australasia is comparatively insignificant. The question of apprenticeship is dealt with in the sections dealing with "Manufacturing Industries" and "Labour and Industrial Statistics."

2. **New South Wales.**—The present organisation of technical education in this State dates from the year 1883, when a Technical Education Board was appointed as a result of suggestions made at the Technological Conference held in 1879. This Board continued its functions till November, 1889, when it was dissolved, and the work has thenceforward been carried on as a branch of the Public Instruction Department. The chief centre of activity is, of course, in Sydney, where the Technical College and Technological Museum are situated, the college having been opened for the reception of students early in 1892. Colleges were also erected in some of the chief country towns—at Maitland in 1890; Newcastle 1896; Bathurst, 1898; Broken Hill 1898; Albury 1899; and Goulburn 1902. In other centres classes were established in various subjects whenever the prospects were sufficiently encouraging. Up to the year 1912 the provision for technical education is stated to have partaken more or less of the nature of successive accretions on the original humble beginnings, rather than to have aimed at development in accordance with a definite plan. With the systematisation of the other branches of education, the necessity for more effective organisation of the technical side became imperative, and in 1913 a rearrangement was effected. Under the new conditions Trade Schools will supersede the branch Technical Colleges, with the exception of that at Newcastle. Entrance to the Trades Schools will be conditional on a student being actively engaged in the trade concerned during the day and possessing a certain degree of preparatory knowledge. The latter qualification is assured by the possession of a certificate from a Commercial Superior Junior Technical School or an Evening Continuation Junior Technical School. It is proposed to build new Trades Schools in several of the suburbs of Sydney, and to establish institutions in the country wherever circumstances demand. The co-operation of both employers and employees has been sought and obtained, and while at first there will be some diminution in the number attending the classes, this will be counterbalanced by increased efficiency. At the beginning of 1913 a conference was held between the education authorities and leading employers and employees with a view to deciding on a scheme of organisation of the system of technical education. Sub-conferences were held for each trade or group of trades. In view of the information received, the Director of Education submitted a scheme to the Minister, and the scheme was approved at the end of November. Under the new plan the instruction will be given in two divisions—(1) Trade Courses; (2) Higher Technical Courses. Instruction in the trade courses will be really continuation trade instruction, i.e., supplementary to actual workshop practice under an employer. Attempts to train youths to be tradesmen in the College will be abandoned, and only those actually engaged as apprentices or journeymen will be admitted to the college classes. Entrance tests are prescribed so as to ensure that students admitted to the courses will possess sufficient preparatory knowledge to benefit by them, but journeymen desirous of improvement may join at any time. Advisory committees have been appointed for each trade or group of trades. The first two or three years' course of instruction will be given in the Trade Schools, of which there are ten, and the last two or three years' at the Technical Colleges, of which there are three, one at Sydney, one at Newcastle, and one at Broken Hill. The higher courses will embrace instruction in advanced trades work qualifying for the position of manager or foreman, but no attempt will be made to train for the professional standing. It is hoped, however, that the scheme will develop so that part of the graduates may proceed to the University. Admission to the higher courses will eventually be restricted to those

who have either graduated in the Trade Schools of the Department, or who evidence possession of a similar standard of knowledge. A liberal scheme of scholarships has been provided for students passing from the day or evening Junior Technical Schools or Domestic Science Schools to the Trades and Science Schools, as well as scholarships to the University at the close of the diploma course.

The table below gives some idea of the development of technical education in New South Wales:—

TECHNICAL EDUCATION, NEW SOUTH WALES, 1912-16.

Year.	Number of Classes.	Number of Enrolments.	Average Weekly Attendance.	Number of Lecturers and Teachers.	Fees Received.
					£
1912 ... ..	793	28,082	17,749	320	15,846
1913 ... ..	582	16,193	12,214	286	13,760
1914 ... ..	513	13,687	11,523	289	10,779
1915 ... ..	519	13,000	9,257	298	9,830
1916 ... ..	529	14,188	10,077	321	9,989

At the beginning of 1913 the Sydney Technical High School and the Hurlstone Agricultural High School were removed from the control of the technical branch and placed under the Inspector of Secondary Schools. Reference to the Agricultural Colleges will be found in the section dealing with Agriculture.

3. **Victoria.**—Technical instruction in mining has for many years received considerable attention in Victoria, the Ballarat School of Mines, which was established as far back as 1870, having achieved an Australasian reputation. Fine work was also done at the School of Mines in Bendigo, and later on excellent courses of training were evolved at the Working Men's College in Melbourne. The general scheme of instruction, however, lacked cohesion, and it was not until after the publication of the Report of the Royal Commission on Technical Education, which was appointed in 1899, that many defects were remedied. It is hoped that the Agricultural and District High Schools will serve as an effective connecting link between the ordinary State Schools and the Technical Schools, as also the Junior Technical Schools established in and around Melbourne, and at Ballarat, Bendigo, Geelong, Sunshine, and Warrnambool. At present there are 23 Technical Schools receiving State aid, and of these 7 afford instruction in Science, Art, Commercial and Trade subjects; 8 in Art, Trade, and Science; 2 in Art, Commerce, and Trade; 1 in Science, Commerce, and Art; 1 in Art and Commerce, while 3 confine their teaching to Art. The largest technical institution in Melbourne is the Working Men's College, founded in 1887. The College, in addition to giving instruction in a large number of technical subjects, is also a School of Mines. Six of the schools, viz., the Working Men's College, and the Schools of Mines at Ballarat, Bendigo, Bairnsdale, Maryborough and Stawell are classed as Certified Science Schools, and provide full courses in metallurgy and mining engineering, extending over three or four years. There are at the present time eleven Junior Technical Schools in existence, giving a two years' course of instruction to boys between the ages of 12½ and 15 years.

During the year 1916 a new Art School, costing £17,000, was opened at the Working Men's College, also an Art School at Ballarat at a cost of £8600, and a Technical School at Brunswick, costing £8400, while the Footscray Technical School cost £6650.

The Committee of the Mechanics' Institute at Prahran has erected a building at a cost of £17,000, to a design approved by the Department, and has made it available without rent as a Technical School, the Department undertaking the expenses of equipment and maintenance.

In his report for 1913-14, the Chief Inspector of Technical Schools alludes to the necessity for an Employment Officer, in order to ensure that boys who have had vocational training will be able to find suitable situations when their term has expired.

## TECHNICAL EDUCATION, VICTORIA, 1912-16.

Year.	No. of Classes.	No. of Enrolments.	Fees Received.
			£
1912 ... ..	101	7,923	11,664
1913 ... ..	92	9,036	13,054
1914 ... ..	103	10,249	12,968
1915 ... ..	110	10,782	14,992
1916 ... ..	104	12,049	16,439

The average attendance in 1914 was 6487, in 1915, 6852, and in 1916, 7724.

4. **Queensland.**—The control of technical education in Queensland was removed from the hands of the local Committee in 1905, and vested in the Education Department. At present the Director is assisted in his administration by a Superintendent, and an Inspector of Technical Colleges. During 1916 there were 15 colleges in operation—Bowen, Bundaberg, Cairns, Central, Charters Towers, Gympie, Ipswich, Mackay, Maryborough, Mount Morgan, Rockhampton, Sandgate, Toowoomba, Townsville, Warwick, and branch classes of these colleges were held in various country centres. The progress of technical education since 1912 is shewn in the following table:—

## TECHNICAL EDUCATION, QUEENSLAND, 1912-16.

Year.	Number of Classes.	Enrolments.	Average Weekly Attendance.	Number of Teachers.	Fees Received.
					£
1912 ... ..	363	7,851	5,589	238	9,794
1913 ... ..	353	7,958	6,009	247	11,069
1914 ... ..	355	7,820	6,481	255	11,326
1915 ... ..	358	7,522	6,258	271	10,761
1916 ... ..	365	8,644	8,500	283	12,024

Greater attention is being devoted to the development of trade classes, and the Technical College authorities have been assisted by the University Professors in the preparation of a properly organised system of Trade instruction. Full time Commercial Day Schools are in operation at Warwick, Ipswich, Brisbane, and Townsville. Preparatory Day Trade Schools have been established in connection with the Central and Ipswich Technical Colleges. Trade Advisory Committees have been inaugurated in connection with several of the subjects of instruction at the Central Technical College. Compulsory attendance at technical classes in various districts has been provided for by industrial awards, the decisions so far—with the exception of Printing—being confined to trades connected with Engineering and Metal Working. The Department now pays about £2000 per annum to the Technical Colleges for the instruction of selected State School pupils in approved subjects. Tuition by correspondence is given by the Central Technical School. It is believed that the raising of the school age to 14 years, coupled with the establishment of High Schools, will result in a more effective co-ordination between ordinary and technical education in the State. At present the Colleges are assisting in the training of returned soldiers, and during 1916, 111 soldier students were receiving instruction in book-keeping, wool-classing, motor mechanics, sugar work, and various other subjects.

5. **South Australia.**—A considerable amount of attention has been given to technical education in South Australia, particularly in connection with the mining industry. The School of Mines and Industries in Adelaide was founded in 1889. There are in addition Schools of Mines at Moonta, Port Pirie, Kapunda, Mt. Gambier and Gawler. The conditions connected with the country Technical Schools, viewed from the standpoint of the Department of Education, are not considered satisfactory. While the Government bears the bulk of the cost of maintenance, the Minister for Education is not consulted in regard to the organisation, curriculum, or staffing of the schools.

Although good work has been accomplished, the system of control of Technical Schools by independent councils is declared by the Director of Education to be no longer suitable, and stress is laid on the necessity for co-ordinating technical effort under one central authority. A Director of Technical Education was appointed in 1916 and the necessary preliminary steps have been taken in the direction of evolving a co-ordinated system. The development of technical education during the last five years is set out in the table hereunder:—

**TECHNICAL EDUCATION, SOUTH AUSTRALIA, 1912-16.**

Year.	Number of Classes.	Enrolments.	Average Weekly Attendance.	Number of Teachers.	Fees Received.
					£
1912 ... ..	201	4,760	3,445	95	3,526
1913 ... ..	218	4,885	3,473	115	3,459
1914 ... ..	229	4,947	3,508	127	3,365
1915 ... ..	228	5,402	3,645	126	3,272
1916 ... ..	203	5,335	4,520	119	3,221

6. **Western Australia.**—A Technical School was established at Perth in 1900, and since its opening has progressed rapidly. Extensive additions to the buildings were made in 1909, and the remodelled institution was opened in 1910. The school is affiliated to the University. There are branch institutions at Midland Junction, Fremantle, Claremont, Kalgoorlie, Boulder, and Geraldton. In addition, Continuation Classes are held at various centres. The schools are all under the control of the Education Department, the officer entrusted with their supervision being styled Director of Technical Education. The Director also supervises the School of Mines at Kalgoorlie, which is controlled by the Mines Department. Advanced work at present is taken only in Perth, Fremantle, Boulder, and in Kalgoorlie by the School of Mines, the other branches dealing almost entirely with preparatory work, chiefly in Continuation Classes. Until the establishment of the local University, the Perth Technical School was affiliated with Adelaide University. Over 100 railway apprentices regularly attend the special classes held at Midland Junction.

At present pupils leaving the State Schools at the age of 14 to take up employment may by attendance at evening classes qualify for free admission to the technical schools. Those with leaving certificates from the eighth standard, and others able to devote their full time to study, may obtain day instruction at the technical schools in subjects bearing on their intended occupations, or may qualify for a more extended course, including graduation at the University. Returns for the last five years are embodied in the table hereunder:—

**TECHNICAL EDUCATION, WESTERN AUSTRALIA, 1912-16.**

Year.	No. of Classes.	Enrolments.	No. of Teachers.	Fees Received.
				£
1912 ... ..	304	5,090	163	3,144
1913 ... ..	230	2,346	77	1,941
1914 ... ..	306	3,353	89	969
1915 ... ..	313	3,184	96	928
1916 ... ..	369	3,757	103	1,058

The average attendance at classes in 1915 was 1920, and in 1916, 2366.

7. **Tasmania.**—In this State provision for technical education dates from the year 1888. At the present time the most important technical institution is the School of Mines and Metallurgy at Zeehan. Courses of instruction are given in metal mining and in metallurgical chemistry and assaying, the diploma in metal mining entitling the holder to the Government certificate of competency as a mine manager. The institution is affiliated to the University of Tasmania. There are also Schools of Mines at Beaconsfield and Queenstown, and Technical Schools at Hobart and Launceston. In the report of the Commission appointed in 1916 to enquire into the condition of technical education in Tasmania, allusion was made to the want of co-ordination between these institutions



and the Education Department, and it was recommended that the schools should be taken over by the Government, and a trained technologist appointed as organising inspector. Statistics for the last five years are as follows:—

#### TECHNICAL EDUCATION, TASMANIA, 1912-1916.

Year.	No. of Classes.	Enrolments.	Average Weekly Attendance.	No of Teachers.	Fees Received.
					£
1912 ...	62	993	300*	36	768
1913 ...	76	1,013	787	41	918
1914 ...	78	900	700	40	936
1915 ...	85	955	545	40	874
1916 ...	69	882	438	37	992

\* Estimated.

8. **Attendance at Commonwealth Technical Schools.**—The table hereunder shows the enrolment and attendance at Technical Schools and classes in the Commonwealth during 1916:—

#### ENROLMENT AND ATTENDANCE AT TECHNICAL SCHOOLS, Etc., 1916. (COMMONWEALTH.)

State.	Enrolment.	Average Attendance.
New South Wales ...	14,188	10,077
Victoria ...	12,049	7,724
Queensland ...	8,644	8,500
South Australia ...	5,335	4,520
Western Australia ...	3,757	2,366
Tasmania ...	882	433
Commonwealth ...	44,855	33,620

9. **Expenditure on Technical Education.**—The expenditure on technical education in each State during the period 1912 to 1916 is shewn below:—

#### EXPENDITURE ON TECHNICAL EDUCATION, 1912-16. (COMMONWEALTH.)

Year.	N.S.W.	Victoria.	Queensland.	South Aust.	West. Aust.	Tasmania.	C'wealth.
	£	£	£	£	£	£	£
1912 ...	99,265	42,541	44,073	15,121	27,536	3,318	231,854
1913 ...	132,305	49,139	63,589	14,769	26,886	3,529	290,217
1914 ...	72,718	73,654	83,722	15,720	13,552	3,493	262,859
1915 ...	78,129	77,852	69,740	16,173	10,375	3,906	256,175
1916 ...	102,139	94,098	41,083	17,614	10,849	4,438	270,221

The figures in the preceding table represent an expenditure of about 1s. 1d. per head of the population of the Commonwealth, as compared with 15s. 3d. per head spent on maintenance for primary education, and clearly shew that technical education has not attained its proper place in the educational organisation of Australia. Expenditure on buildings, included in the foregoing totals, comprises £21,481 in New South Wales, £27,462 in Victoria, £7776 in Queensland, and £898 in Western Australia.

#### § 7. Business Colleges and Shorthand Schools.

There has been considerable development in recent years both in the number and scope of privately conducted institutions, which aim at giving instruction in business methods, shorthand, typewriting, the use of calculating machines, etc. Particulars for all States excepting Queensland are given in the table hereunder:—

## BUSINESS COLLEGES, SHORTHAND SCHOOLS, Etc., 1916.

State.	Schools.	Teachers.	Students Enrolled.		Aver. Attendances.		Fees Recd.
			Males.	Females.	Males.	Females.	
New South Wales ...	17	112	2,336	4,907	1,059	1,685	£ 30,521
Victoria ...	17	163	3,966	3,171	2,882	2,368	†
Queensland*	...	...	...	...	...	...	...
South Australia ...	4	39	691	1,272	451	757	10,697
Western Australia ...	7	45	544	695	†	†	9,077
Tasmania ...	3	9	76	246	35	115	1,725

\* Included in Private Schools. † Not available.

The figures for New South Wales are exclusive of students instructed at home through the medium of correspondence classes.

In Victoria it is explained that the preponderance of male students is due to the larger enrolment of males in the correspondence classes.

## § 8. Diffusion of Education.

1. **General Education.**—A rough indication of the state of education of the people is obtained at each Census under the three headings, "read and write," "read only," and "cannot read." The grouping of the whole population, exclusive of aborigines, in these three divisions is given for each Census since 1861:—

EDUCATION AT CENSUS PERIODS, 1861 to 1911.  
(COMMONWEALTH.)

State or Territory.		1861.	1871.	1881.	1891.	1901.	1911.
N.S.W.*	{ Read & write	188,543	296,741	507,067	835,562	1,071,935	1,379,631
	{ Read only...	46,024	56,391	49,372	43,539	29,728	6,442
	{ Cannot read	116,293	149,866	193,386	244,853	253,183	260,661
Vic. ...	{ Read & write	328,362	478,464	653,346	908,490	998,010	1,136,289
	{ Read only...	57,351	70,953	47,950	32,794	21,852	4,630
	{ Cannot read	152,915	180,781	160,270	198,556	181,208	174,632
Q'nsland	{ Read & write	17,152	74,940	136,436	276,381	376,294	508,703
	{ Read only...	3,680	12,080	13,657	14,618	11,737	3,416
	{ Cannot read	9,227	33,084	63,432	102,719	110,098	93,694
S.A. † ...	{ Read & write	72,190	117,349	200,057	236,514	290,748	344,095
	{ Read only...	18,535	21,509	15,267	9,571	8,283	1,785
	{ Cannot read	36,105	46,768	64,541	74,346	64,126	62,678
W. Aus.	{ Read & write	7,683	14,166	19,684	34,254	150,099	237,629
	{ Read only...	1,301	2,717	2,430	2,061	3,107	917
	{ Cannot read	5,853	7,902	7,594	13,467	30,918	43,568
Tas. ...	{ Read & write	48,282	55,941	74,966	103,138	133,579	155,295
	{ Read only...	13,136	13,946	9,606	6,287	3,907	918
	{ Cannot read	28,559	29,441	31,133	37,242	34,989	34,998
North'mn	{ Read & write	...	...	...	...	...	2,397
Territ'y ‡	{ Read only...	...	...	...	...	...	34
	{ Cannot read	...	...	...	...	...	879
Federal	{ Read & write	...	...	...	...	...	1,424
Territ'y §	{ Read only	...	...	...	...	...	14
	{ Cannot read	...	...	...	...	...	276
C'wealth	{ Read & write	662,212	1,037,601	1,591,556	2,394,339	3,020,665	3,765,463
	{ Read only...	140,027	177,596	138,282	108,870	78,614	18,156
	{ Cannot read	348,952	447,842	520,356	671,183	674,522	671,386

\* Including Federal Territory prior to 1911.

† Including Northern Territory prior to 1911.

‡ Included in South Australia prior to 1911.

§ Included in New South Wales prior to 1911.

The proportion in the Commonwealth of the various classes per 10,000 of the population is shewn below for each Census period:—

**PROPORTION OF EDUCATED AND ILLITERATE PER 10,000 PERSONS, 1861 to 1911.**  
(COMMONWEALTH.)

Division.	1861.	1871.	1881.	1891.	1901.	1911.
Read and write ...	5,752	6,239	7,073	7,543	8,004	8,452
Read only ...	1,217	1,068	615	343	208	41
Cannot read ...	3,031	2,693	2,312	2,114	1,788	1,507

**2. Education of Children.**—The figures in the preceding tables refer to the entire population of the Commonwealth, and as the age constitution of those dwelling in the various portions of Australia underwent considerable modifications during the period dealt with, a far more reliable test of the diffusion of education will be obtained by a comparison of the Census returns in regard to children of school age. For comparative purposes this has been taken to include all children in the group over five and under fifteen years of age, and the degree of education of these at each Census will be found below:—

**EDUCATION OF CHILDREN AT CENSUS PERIODS, 1861 to 1911.**  
(COMMONWEALTH.)

State or Territory.	1861.	1871.	1881.	1891.	1901.	1911.
N.S.W. {						
Read & write	34,040	68,776	121,735	196,240	251,187	291,450
Read only ...	20,345	26,886	25,100	21,375	15,934	993
Cannot read	25,472	32,924	41,663	48,580	60,734	34,793
Victoria {						
Read & write	42,268	122,739	170,713	201,199	236,515	237,028
Read only ...	25,518	39,636	25,249	15,656	13,128	410
Cannot read	19,341	29,490	21,421	27,441	27,765	19,621
Q'land... {						
Read & write	2,156	12,698	33,317	62,402	95,635	117,347
Read only ...	1,534	6,104	7,019	7,580	5,955	616
Cannot read	1,629	6,015	9,615	16,257	18,227	8,633
Read & write	15,485	30,608	46,630	58,291	69,451	69,878
S.A.† ... {						
Read only ...	8,748	12,432	7,926	4,618	4,229	248
Cannot read	6,907	10,074	12,483	17,988	15,480	9,638
Read & write	1,333	3,218	4,418	6,910	25,326	47,568
W. Aus. {						
Read only ...	226	617	1,260	933	1,815	159
Cannot read	1,015	1,795	1,593	2,348	5,431	5,234
Read & write	11,919	17,335	17,188	24,007	32,890	36,351
Tas. ... {						
Read only ...	2,848	4,143	4,108	2,974	1,795	186
Cannot read	4,581	6,663	6,606	8,829	8,475	5,575
Read & write	...	...	...	...	...	195
N. T.‡ ... {						
Read only ...	...	...	...	...	...	...
Cannot read	...	...	...	...	...	118
Read & write	...	...	...	...	...	322
Federal {						
Read only ...	...	...	...	...	...	2
Ter.§ ... {						
Cannot read	...	...	...	...	...	47
C'wealth {						
Read & write	107,201	255,374	394,001	549,049	711,004	800,139
Read only ...	59,219	89,818	70,662	53,136	42,856	2,614
Cannot read	58,945	86,961	93,381	121,443	136,712	83,659

\* Including Federal Territory prior to 1911. † Including Northern Territory prior to 1911. ‡ Included in South Australia prior to 1911. § Included in New South Wales prior to 1911.

In the case of Tasmania full details for the years 1861 and 1871 are not available, and the figures for those years are approximate. The variation in degree of education will be more readily seen by reducing the foregoing figures to the basis of proportion per 10,000, and the results so obtained are embodied in the following table, a glance at which is sufficient to demonstrate the remarkable strides that at least the lower branches of education have made since 1861. In that year, only 47 per cent. of the children of school age could read and write, while 26 per cent. were illiterate. The returns for 1911 shew that the proportion of those who could read and write had increased to over 90 per cent., while the totally ignorant had declined by nearly two-thirds.

**EDUCATION OF CHILDREN (AGES 5 TO 14) PER 10,000 AT CENSUS PERIODS,  
1861 to 1911.**  
(COMMONWEALTH.)

State or Territory.		1861.	1871.	1881.	1891.	1901.	1911.
N.S.W.*...	{ Read & write	4,263	5,349	6,458	7,372	7,662	8,907
	{ Read only...	2,547	2,091	1,332	803	486	30
	{ Cannot read	3,190	2,560	2,210	1,825	1,852	1,063
Victoria ...	{ Read & write	4,851	6,397	7,853	8,236	8,526	9,221
	{ Read only...	2,929	2,066	1,162	641	473	16
	{ Cannot read	2,220	1,537	985	1,123	1,001	763
Queensl'd	{ Read & write	4,053	5,116	6,670	7,236	7,942	9,269
	{ Read only...	2,884	2,460	1,405	879	495	49
	{ Cannot read	3,063	2,424	1,925	1,885	1,563	682
S. Aus.†...	{ Read & write	4,973	5,763	6,956	7,206	7,790	8,761
	{ Read only...	2,809	2,341	1,182	571	474	31
	{ Cannot read	2,218	1,896	1,862	2,223	1,736	1,208
W. Aus....	{ Read & write	5,179	5,716	6,076	6,780	7,775	8,982
	{ Read only...	878	1,096	1,733	916	557	30
	{ Cannot read	3,943	3,188	2,191	2,304	1,668	988
Tasmania	{ Read & write	6,160	6,160	6,160	6,704	7,620	8,632
	{ Read only...	1,472	1,472	1,472	830	416	44
	{ Cannot read	2,368	2,368	2,368	2,466	1,964	1,324
Northern Territ'y‡	{ Read & write	...	...	...	...	...	6,230
	{ Read only...	...	...	...	...	...	...
	{ Cannot read	...	...	...	...	...	3,770
Federal Territ'y§	{ Read & write	...	...	...	...	...	9,868
	{ Read only...	...	...	...	...	...	5
	{ Cannot read	...	...	...	...	...	127
C'wealth	{ Read & write	4,757	5,910	7,061	7,588	7,984	9,027
	{ Read only...	2,628	2,078	1,266	734	481	29
	{ Cannot read	2,615	2,012	1,673	1,678	1,535	944

\* Including Federal Territory prior to 1911.  
‡ Included in South Australia prior to 1911.

† Including Northern Territory prior to 1911.  
§ Included in New South Wales prior to 1911.

**3. Education as shewn by Marriage Registers.**—Another common method of testing the spread of education is to compare the number of mark signatures with the total number of persons married during each year of a series. The percentage of males and females signing with a mark to the total persons married in the Census years 1861 to 1901, and during each of the last nine years, was as follows. The figures refer to marriages in the Commonwealth in respect of which information was obtainable.

**ILLITERACY SHEWN BY MARRIAGE SIGNATURES, 1861 to 1916.**  
(COMMONWEALTH.)

Year.	Proportion Signing with Marks of Total Persons Married.						
	Males.	Females.	Total.	Year.	Males.	Females.	Total.
	per cent.	per cent.	per cent.		per cent.	per cent.	per cent.
1861 ...	18.50	30.69	24.60	1210 ...	0.56	0.59	0.58
1871 ...	10.58	16.40	13.49	1911 ...	0.56	0.54	0.55
1881 ...	4.34	6.78	5.56	1912 ...	0.43	0.45	0.44
1891 ...	2.27	2.40	2.34	1913 ...	0.36	0.38	0.37
1901 ...	1.35	1.29	1.32	1914 ...	0.41	0.38	0.39
1908 ...	0.71	0.73	0.72	1915 ...	0.27	0.27	0.27
1909 ...	0.65	0.62	0.64	1916 ...	0.37	0.32	0.35

The table shews that there has been a large diminution in illiteracy, and judging from the figures for the last few years the proportion bids fair to practically disappear. Up to 1891 there was a higher proportion of illiteracy amongst females, but during the last nine years the rates have been very even.

### § 9. Miscellaneous.

1. **Scientific Societies.**—(a) *Royal Societies.* Despite the trials and struggles incidental to the earlier years of the history of Australia, higher education and scientific advancement were not lost sight of. Thus the origin of the Royal Society of New South Wales dates as far back as 1821, when it was founded under the name of the Philosophical Society of Australasia, Sir Thomas Brisbane being its first president. Scientific work was fitfully carried on by means of a society whose name varied as the years rolled on. It was called the Australian Philosophical Society in 1850. In 1856 the old Australian Society merged into a resuscitated Philosophical Society of New South Wales, and its papers were published up to 1859 in the *Sydney Magazine of Science and Art* (2 vols. 1858-9). Its present title dates from 1866. Some of the papers of the old Philosophical Society were published in 1825 under the title of "Geographical Memoirs of New South Wales" (Barron Field), and contain much that is interesting in regard to the early history of Australia. One volume containing the Transactions of the Philosophical Society of New South Wales (1862-65) was published in 1866. The journal of the Society did not begin to bear a serial number, however (vol. 1), until the year 1867. "Transactions of the Royal Society of New South Wales" were issued in 1867, the title of the series being altered to "Journal" in 1876. Up to the end of 1917, 51 volumes had been published. The exchange list comprises the names of 380 kindred societies. At the present time the library contains about 23,000 volumes and pamphlets, valued at about £7000. Income and expenditure for the year ended 31st March, 1916, were £1316 and £1254 respectively, and the Society had on the same date 319 members.

The Royal Society of Victoria dates from 1854, in which year the Victorian Institute for the Advancement of Science and the Philosophical Society of Victoria were founded. These were amalgamated in the following year under the title of the Philosophical Institute of Victoria, whilst the Society received its present title in 1860. The first volume of its publications dates from 1855. The earlier publications dealt largely with Physics, later on Biology became prominent, while at present a large number of papers deal with Geology. Up to 1917, 63 volumes of publications had been issued. The Society exchanges with 326 kindred bodies. The constitution of the Society states that it was founded "for the promotion of art, literature, and science," but for many years past science has monopolised its energies. The library contains over 11,000 volumes, valued at £3100. Income for the year 1917 amounted to £330, and expenditure to £350. There are 192 members on the roll.

The inaugural meeting of the Royal Society of Queensland was held on the 8th January, 1884, under the presidency of the late Sir A. C. Gregory. The Society was formed "for the furtherance of the natural and applied sciences, especially by means of

original research." Shortly after its formation it received an addition to its ranks by the amalgamation with it of the Queensland Philosophical Society, which was started at the time when Queensland became a separate colony. At latest date the members numbered 88; publications issued, 29 volumes; library, 5000 volumes; societies on exchange list, 173. Income and expenditure in 1917 amounted to £130 and £129 respectively.

The present Royal Society of South Australia grew out of the Adelaide Philosophical Society, which was founded in 1853, its object being the discussion of all subjects connected with science, literature and art. Despite this programme, the tendency of the papers was distinctly scientific, or of a practical or industrial nature. With the advent of the late Professor Tate the society became purely scientific. Permission to assume the title of "Royal" was obtained in 1879, the Society thenceforward being known as "The Royal Society of South Australia." In 1903 the society was incorporated. In 1917 the number of members was 90. The income for the year 1917 was £450, and expenditure £471. Up to 1917 the Society had issued 43 volumes of proceedings and six parts of memoirs, exclusive of several individual papers published in earlier years. The exchange list numbers about 212, while the library contains 3200 volumes and over 1300 pamphlets.

Permission to assume the title of Royal Society was granted to the Natural History and Science Society of Western Australia in March, 1914. This Society has grown out of the Mueller Botanic Society, founded in July, 1897. The objects of the society are the study of natural history and pure science, promoted by periodical meetings and field excursions, the maintenance of a library, and issue of reports of proceedings. It numbers at present 90 members, whose subscriptions form its main source of revenue, the income and expenditure in 1917 being respectively £88 and £46. Five volumes of proceedings were issued as Journal of the Natural History and Science Society of Western Australia, and two as of the Royal Society. Its publications are exchanged with 55 institutions at home and abroad. The library contains 320 volumes, besides unbound journals, pamphlets, etc.

The Royal Society of Tasmania (the first Royal Society outside the United Kingdom) was inaugurated by Sir Eardley Wilmot, Lieutenant-Governor of Van Diemen's Land, on the 14th October, 1843. It may be mentioned, however, that a scientific society had been formed as far back as 1838 under the presidency of Sir John Franklin, then Governor of the colony, and in 1841 the number of resident members was 31, and corresponding members, 38. The meetings of this parent society were held at Government House, and three volumes of proceedings were issued. A large portion of the Colonial Gardens, together with a grant of £400, was given to the Society. A library and museum were established in 1848. In 1885 the museum and gardens were given back to the State, the Society being granted room in the museum for its library and meetings. The names of Captains Ross and Crozier, of H.M.S. *Erebus* and *Terror*, appear in the list of the first corresponding members. The society, which, since 1844, has published 56 annual volumes of proceedings, possesses 94 members, 13 corresponding members, exchanges with 216 kindred bodies, and has a library containing 12,800 volumes, in addition to manuscripts, etc., valued at £4000. Income for the year 1917 was £202, and expenditure £153.

(b) *Other Scientific Societies.* The Australasian Association for the Advancement of Science, founded in 1888, has its headquarters in Sydney. It meets usually in each State biennially in turn. Its receipts to date were about £14,000, including Government aid to the amount of £4000. The library contains 4000 volumes, valued at £400. Up to date, 14 volumes of proceedings have been issued. The exchange list numbers 176. The Linnean Society of New South Wales, with headquarters in Sydney, was founded in 1875, and possesses a library of 10,000 volumes, valued at £6000. Up to date 42 volumes of proceedings have been issued. Exchanges number 188. This Society maintains five investigators engaged in research work, and owes its development almost entirely to the benefactions of Sir William Macleay. The number of ordinary members at the end of 1917 was 154. Income for the year came to £1245, and expenditure to £929. The

special revenue for research purposes only was £2849, and the expenditure £2314. The British Astronomical Society has a branch in Sydney, and in some of the States the British Medical Association has branches.

The Chemical Society of Western Australia was founded in 1915, for the promotion of the study of Chemistry and the furtherance of the interests of professional chemists. Meetings are held monthly. There is a council consisting (in 1917) of seven members.

In addition to the societies enumerated above, there are various others in each State devoted to branches of scientific investigation, particulars respecting which are not at present available.

2. **Libraries.**—As far as can be ascertained the total number of libraries in the Commonwealth at the latest available date was about 1700, and the number of books contained therein is estimated at about four millions. In each of the capital cities there is a well-equipped Public Library, the institutions in Melbourne and Sydney especially comparing very favourably with similar institutions elsewhere. The new reading room at the Melbourne Library ranks amongst the finest in the world. It was opened in November, 1913, and has a diameter of 114 feet, with a similar height, and is capable of seating 320 readers at a time, all of whom are under efficient supervision from the centre of the room. The following statement gives the number of volumes in the Public Library of each city :—

#### METROPOLITAN PUBLIC LIBRARIES.

City.	Number of Volumes in—			Total.
	Reference Branch.	Ordinary Lending Branch.	Country Lending Branch.	
Sydney ... ..	278,948	*	16,394	295,342
Melbourne ... ..	245,455	34,472	...	279,927
Brisbane ... ..	39,544	...	...	39,544
Adelaide ... ..	99,109	31,715	...	130,824
Perth ... ..	105,116	13,011	...	118,127
Hobart ... ..	21,000	...	...	21,000

\* The maintenance and control of the lending branch of the Public Library at Sydney were transferred in 1908 to the Municipal Council. At the end of December, 1916, the books numbered 34,000.

The Mitchell Library in Sydney consisted of over 60,000 volumes and pamphlets, and 300 paintings, principally relating to Australasia, valued at £100,000, and bequeathed in 1907 by Mr. D. S. Mitchell, together with an endowment of £70,000. The testator stipulated that the regulations of the British Museum were to be adopted as far as practicable, hence the library is the resort of specialists. There are now 88,000 volumes in the library. The Fisher Library at the Sydney University contains 100,000 volumes.

The Launceston Mechanics' Institute in Tasmania possesses a library of 27,000 volumes.

The number of libraries in receipt of State or municipal aid, together with the estimated number of books contained therein, is given below for each State:—

#### SUBSIDISED LIBRARIES AND BOOKS THEREIN.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Terr.
Number of libraries ... ..	464	500	232	210	253	25	3
Estimated number of books ...	1,064,000	1,173,000	373,000	567,000	258,000	103,000	5,000

The figures in the above table can be taken only as approximations, as in many instances returns were not received from various institutions. The return for New South Wales includes the Public Library, the Mitchell Library, and the Sydney Municipal Library. Amongst other important libraries not included, may be enumerated those at the Sydney University and the Australian Museum, which contain 100,000 and 22,000 volumes respectively, and the Parliamentary Library with over 52,000 volumes. There are also over 2700 libraries, with an estimated total of 362,000 volumes, attached to State Schools.

**3. Museums.**—The Australian Museum in Sydney, founded in 1836, is the oldest institution of its kind in Australia. In addition to possessing a fine collection of the usual objects to be met with in kindred institutions, the Museum contains a very valuable and complete set of specimens of Australian fauna. The cost of construction of the building was £79,000. The number of visitors to the institution in 1916 was 191,000, and the average attendance on week-days 507, and on Sundays 1069. The expenditure for 1916 amounted to £10,102. A valuable library containing over 22,000 volumes is attached to the Museum. Representative collections, illustrative of the natural wealth of the country, are to be found in the Agricultural and Forestry Museum, and the Mining and Geological Museum. The latter institution prepares collections of specimens to be used as teaching aids in country schools. The "Nicholson" Museum of Antiquities, the "Macleay" Museum of Natural History, and the Museum of Normal and Morbid Anatomy, connected with the University, and the National Herbarium and Botanical Museum at the Sydney Botanic Gardens, are also accessible to the public. There is a fine Technological Museum in Sydney, with branches in six country centres, the combined institutions containing over 115,000 specimens. Valuable research work has been undertaken by the scientific staff in connection with oil and other products of the eucalyptus. The number of visitors at the Technological Museums during 1916 was about 233,000.

The National Museum at Melbourne, devoted to Natural History, Geology, and Ethnology, is located in the Public Library building. The National Art Gallery is also situated in the same building. The expenditure for specimens, furniture, etc., in 1916 was £560, and salaries and wages £2621. The Industrial and Technological Museum, opened in 1870, contains about 9000 exhibits. There is a fine Museum of Botany and Plant Products in the Melbourne Botanic Gardens. In addition to the fine collection in the geological museum attached to the Mines Department in Melbourne, well-equipped museums of mining and geological specimens are established in connection with the Schools of Mines in the chief mining districts.

The Queensland Museum dates from the year 1871, but the present building was opened in January, 1901. Since its inauguration the Government has expended on the institution a sum of £89,521, of which buildings absorbed £19,538, purchases £27,210, and salaries £42,773. The number of visitors during the year was 71,745, of whom 25,903 visited the institution on Sundays. The Queensland Geological Survey Museum has branches in Townsville, opened in 1886, and in Brisbane, opened in 1892.

Under the Public Library Act of 1884 the South Australian Institute ceased to exist, and the books contained therein were divided amongst the Museum, Public Library, and Art Gallery of South Australia, and the Adelaide Circulating Library. The Museum was attended by 81,000 visitors in 1916.

The latest available returns shew that the Western Australian Museum contains altogether 88,000 specimens, of an estimated value of £78,000. The Museum is housed in the same building as the Art Gallery, and the visitors to the combined institutions during the year reached 82,000. The expenditure for the year 1916-17 was £1820, and the Government grants for the year amounted to £2300.



There are two museums in Tasmania—the Tasmanian Museum at Hobart, and the Victoria Museum and Art Gallery at Launceston, both of which contain valuable collections of botanical and mineral products. The Tasmanian Museum received aid from the Government during last year to the extent of £600. The Hobart institution cost £9500 to construct, and that at Launceston £6000.

**4. Art Galleries.**—Information regarding the State collections of objects of art in the various capitals is in some cases very meagre, while the method of presentation does not admit of any detailed comparisons being made. The National Art Gallery of New South Wales originated in the Academy of Art founded in 1871. Cost of construction is returned at £94,000. The contents, which are valued at £151,000, comprise 437 oil paintings, 411 water colours, 626 black and white, 168 statuary and bronzes, and 434 ceramics, works in metal and miscellaneous. During 1916 the average attendance on week days was 438, and on Sundays 1960.

The National Gallery at Melbourne at the end of 1916 contained 584 oil paintings, 4683 objects of statuary, bronzes and ceramics, and 14,107 water-colour drawings, engravings, and photographs. The Gallery is situated in the same building as the Museum and Public Library, the total cost of construction being £325,000. Several munificent bequests have been made to the institution. That of Mr. Alfred Felton, given in 1914, amounts to about £8000 per annum. In 1913, Mr. John Connell presented his collection of art furniture, silver, pictures, etc., the whole being valued at £10,000. At the end of 1916 the Ballarat Art Gallery contained 221 oil paintings and 163 water colours, etc., while there are some valuable works of art in the smaller galleries at Bendigo, Castlemaine, Geelong, and Warrnambool.

The Queensland National Art Gallery, situated in the Executive Buildings, Brisbane, was founded in 1895 and contains a small, but well chosen, collection of pictures. At latest available date there were on view 93 oil paintings, 23 water colours, 99 black and white, and 29 pieces of statuary, together with various prints, mosaics, and miniatures. Exclusive of exhibits on loan, the contents are valued at about £10,000.

The Art Gallery at Adelaide dates from 1880, when the Government expended £2000 in the purchase of pictures, which were exhibited in the Public Library building in 1882. The liberality of private citizens caused the Gallery to rapidly outgrow the accommodation provided for it in 1889, at the Exhibition Building, and on the receipt of a bequest of £25,000 from the late Sir T. Elder, the Government erected the present building, which was opened in April, 1900. The Gallery also received bequests of £16,500 in 1903 from the estate of Dr. Morgan Thomas, and of £3000 in 1907 from Mr. David Murray. At the latest available date there were in the Gallery 238 oil paintings, 71 water colours, and 24 statuary. Building and site are valued at upwards of £31,000. Visitors during the year 1916 numbered 90,000.

The foundation stone of the present Art Gallery at Perth in Western Australia was laid in 1901, the building and site being valued at £60,000. The collection comprises 96 oil paintings, 51 water colours, 192 black and white, 265 statuary, and miscellaneous metal works, etc.

In Tasmania the Art Gallery at Hobart was opened in 1887. Its present contents consist of 96 paintings and 81 etchings and black and white drawings. The building is valued at £9500.

The Art Gallery at Launceston was erected in 1888 at a cost of £5000, and opened on the 2nd April, 1891. Only a small proportion of the contents belong to the Gallery, the bulk of the pictures being obtained on loan. At latest date there were on view 80 oil paintings and 44 water colours valued at £5000. The building is valued at £6000. Average attendance of visitors on week days is returned as 96 and on Sundays 200.

5. **State Expenditure on all Forms of Educational Effort.**—The expenditure from the Consolidated Revenue in each State and Territory on all forms of educational and scientific activity during each of the last five financial years was as follows:—

**EXPENDITURE ON EDUCATION, SCIENCE, AND ART, 1912-13 to 1916-17.**

State or Territory.		1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
		£	£	£	£	£
New South Wales	Total	£ 1,609,734	1,735,404	1,651,571	1,717,040	2,039,792
	Per head	18/1	18/11	17/9	18/4	20/2
Victoria ...	Total	£ 1,122,854	1,147,319	1,218,459	1,161,335	1,171,757
	Per head	16/3	16/3	17/0	16/5	16/9
Queensland ...	Total	£ 622,238	702,491	807,915	703,664	763,591
	Per head	19/6	21/6	23/10	20/8	22/10
South Australia...	Total	£ 323,787	342,209	342,464	337,307	376,730
	Per head	15/1	15/6	15/6	15/4	17/5
Western Australia	Total	£ 319,723	349,371	351,516	348,344	368,603
	Per head	20/10	21/9	21/9	21/11	23/10
Tasmania ...	Total	£ 101,008	112,364	124,791	127,016	132,590
	Per head	10/3	11/2	12/5	12/7	13/3
Northern Territ'y	Total	£ 2,516	3,916	2,073	2,180	2,257
	Per head	14/6	21/4	10/5	9/7	9/6
Commonwealth	Total	£ 4,101,860	4,393,074	4,498,789	4,396,886	4,855,320
	Per head	17/4	18/0	18/3	17/10	19/11

The comparatively heavy increases in Queensland and Western Australia since 1912 are due to the inclusion of expenditure in connection with the newly-established Universities in those States.

## SECTION XXIII.

## PUBLIC JUSTICE.

## § 1. Police.

1. **Introductory.**—In previous issues of the Year Book a *résumé* was given of the evolution of the police force in Australia up to the passing of the Police Act of 1862 (25 Vic. No. 16) in New South Wales, but considerations of space preclude its inclusion in the present volume.

In general terms the police forces of Australia may be said to be satisfactory both in regard to physique and intelligence, while as regards methods of prevention and detection of crime it is believed that the system in vogue here compares very favourably with those of the older-settled countries of the world.

2. **Strength of Police Force.**—The strength of the police force in each State during the five years ended 1916 was as follows. It may be mentioned that the police forces are entirely under State control, but, by arrangement, the Commonwealth Government utilises their services in various directions, such as the collection of Commonwealth electoral rolls, etc.:—

POLICE FORCES IN THE COMMONWEALTH, 1912 to 1916.

State.	Area of State in Sq. Miles.	1912.	1913.	1914.	1915.	1916.
New South Wales	310,372	2,554	2,582	2,627	2,613	2,587
Victoria...	87,884	1,662	1,753	1,739	1,737	1,638
Queensland	670,500	1,084	1,108	1,112	1,194	1,176
South Australia	380,070	522	500	556	541	567
Western Australia	975,920	487	477	482	495	473
Tasmania	26,215	237	237	231	233	232
Northern Territory	523,620	25	26	25	26	27
Commonwealth	2,974,581	6,571	6,683	6,772	6,839	6,700

The figures for New South Wales for 1916 are exclusive of forty-two "black trackers," i.e., natives employed in detection of offenders chiefly in outlying districts, and five female searchers. In Queensland there were 100 native trackers. The South Australian returns for 1916 are exclusive of eight "black trackers" and one female searcher, and the Tasmanian returns are exclusive of a female searcher. The Northern Territory had twenty-four "black trackers" in 1916. There are also fifty-three "black trackers" in Western Australia and four searchers not included in the table.

*Average Number of Inhabitants to each Police Officer.* The average number of inhabitants to each officer in each State during the same period is as follows. In considering these figures, allowance must, of course, be made for the unequal area and unequal distribution of the population of the various States.

**INHABITANTS TO EACH POLICE OFFICER, 1912 to 1916.**  
(COMMONWEALTH.)

State.	No. of Persons per Sq. Mile, 1911 Census.	Inhabitants to each Police Officer.				
		1912.	1913.	1914.	1915.	1916.
New South Wales ...	5.31	697	710	709	716	719
Victoria ...	14.97	831	805	823	816	855
Queensland ...	0.90	587	595	603	570	569
South Australia ...	0.46	824	880	794	810	762
Western Australia ...	0.29	628	672	670	642	653
Tasmania ...	7.29	832	851	872	863	862
Northern Territory ...	...	139	141	159	175	177
Commonwealth ...	1.50	720	729	730	721	728

The figures in the preceding tables shew a great disparity in the relative numbers of the population protected by each police officer in the various States, and also in the relative area of territory to each officer. Western Australia and South Australia exhibit the largest figures in the latter respect, this, of course, being due to the fact that extensive areas in each State are as yet unpeopled by white settlers.

**3. Duties of the Police.**—In addition to the ordinary employment attaching to their office, the police are called upon to perform many duties which in other countries are carried out by various functionaries. Thus, in Queensland, according to the Commissioner's report for 1916, no less than sixty-two subsidiary offices are held by the police. As far as the statistician is concerned, it is found that the expert local knowledge possessed by the police renders their services in the collection of such returns as those relating to the agricultural, pastoral, and manufacturing industries, private schools, etc., more than ordinarily valuable. Then, again, the fact that their services are enlisted by such widely different departments as those dealing with mines, stock, agriculture, elections, registrations of births, deaths, and marriages, forestry, fisheries, explosives, old-age pensions, lunacy, public works, labour, etc., greatly enhances their general alertness by widening the range of their experience. Occasionally the objection is heard in some quarters that these special tasks involve some degree of sacrifice of ordinary routine duties, but that the general intelligence of the Australian police is adequate to the obligation to perform these tasks, besides being most creditable, results in a great saving of the public money.

**4. Cost of Police Forces.**—The expenditure from Consolidated Revenue on the police forces in each State during the five years 1912 to 1916 is shewn in the following table. Cost of buildings has been excluded from the return:—

**COST OF POLICE FORCES IN THE COMMONWEALTH, 1912 to 1916.**

State.	1912.	1913.	1914.	1915.	1916.
	£	£	£	£	£
New South Wales ...	578,767	593,406	592,694	603,347	649,093
Victoria ...	348,227	354,264	380,724	365,821	356,885
Queensland ...	306,431	304,817	302,633	302,209	322,422
South Australia ...	116,847	129,834	132,445	131,580	127,632
Western Australia ...	129,556	126,532	133,452	131,806	125,446
Tasmania ...	43,236	45,237	45,972	45,952	47,320
Northern Territory ...	10,609	10,614	10,307	10,216	10,260
Commonwealth ...	1,533,673	1,564,704	1,598,227	1,590,931	1,639,058

The total for New South Wales includes £47,000 payment to Police Superannuation Fund. Similar payments in Victoria and Queensland amount to £20,000 and £34,000 respectively, while smaller sums are included in the returns for other States. The cost per head of the population in each State for the period 1912 to 1916 was as follows:—

**COST OF POLICE PER INHABITANT, 1912 to 1916.**

(COMMONWEALTH.)

State.	1912.	1913.	1914.	1915.	1916.
	s. d.	s. d.	s. d.	s. d.	s. d.
New South Wales ...	6 8	6 7	6 4	6 6	7 0
Victoria ...	5 2	5 1	5 4	5 2	5 0
Queensland ...	9 8	9 4	9 0	8 11	9 8
South Australia ...	5 6	6 0	6 0	6 0	5 11
Western Australia ...	8 7	8 1	8 3	8 3	8 1
Tasmania ...	4 6	4 7	4 7	4 7	4 9
Northern Territory ...	63 2	58 0	52 0	44 9	43 0
Commonwealth ...	6 7	6 6	6 6	6 6	6 9

The relatively high cost per head in Queensland and Western Australia is due to the fact that there are in those States extensive areas of sparsely settled country, in which mounted patrols have to be maintained.

In view of the small number of its white population and the vast extent of country to be patrolled, the figures for the Northern Territory necessarily shew a very high average. The duties of the police, moreover, chiefly pertain to matters connected with the control of aborigines.

**§ 2. Lower (Magistrates') Courts.**

1. **Introductory.**—In considering the criminal returns of the various States, due allowance must be made on account of several factors, such as the relative powers of the courts, both lower and higher, etc. In the case of lower courts, the actual number of laws in each State, the breach of which renders a person liable to fine or imprisonment, must be taken into account. Again, the attitude of the magistracy and police towards certain classes of offences is a factor, for in the case of liquor laws, or laws connected with vagrancy or gaming, the views of magistrates, and instructions issued to the police, may be responsible for considerable variations in the returns. The strength and distribution of the police forces, and the age constitution and distribution of the State's population, also influence the results. In any consideration of criminal returns, due weight should also be given to the prevalence of undetected crime, but information on this point can only be obtained for the State of Victoria. It may be mentioned that each State has its own separate judicial system, the Commonwealth jurisdiction being confined to the High Court of Australia, which is largely a Court of Appeal intermediate to the Privy Council, although it has also original jurisdiction, and the Commonwealth Court of Arbitration and Conciliation. Full particulars regarding the judicial power of the Commonwealth will be found in Chapter III. of the Commonwealth Constitution (see page 27).

2. **Powers of the Magistrates.**—In New South Wales there is no general limit to the powers of the magistrates in regard to offences punished summarily, their authority depending in such case on the statute which creates the offence and gives them jurisdiction. Except in the case of a very few statutes, and excluding cumulative sentences,

the power of sentence is limited to six months. Imprisonment in default of payment of fine is regulated by a scale limiting the maximum period according to the sum ordered to be paid, but in no case exceeding twelve months. Actions for debt and damage within certain limits also come within magisterial jurisdiction. In cases of debts, liquidated or unliquidated, the amount recoverable is not exceeding £50 before a court constituted of a stipendiary or police magistrate at certain authorised places, and not exceeding £30 at any other place before a court constituted of a stipendiary or police magistrate or two or more justices of the peace. The amount in actions of damage is limited to £10, but may extend to £30 by consent of parties.

In Victoria, the civil jurisdiction of magistrates is restricted to what may be designated ordinary debts, damages for assault, restitution of goods, etc., where the amount in dispute does not exceed £50. No definite limit is fixed to the powers of the magistrates on the criminal side, and for some offences sentences up to two years may be imposed. The proportion of long sentences is, however, comparatively small.

In Queensland, generally speaking, the maximum term of imprisonment which justices can inflict is six months, but in certain exceptional cases, such as offences against sections 233 and 445 of the criminal code (betting-houses and illegally using animals), sentences of twelve months may be imposed. No limit exists as to the extent to which cumulative sentences may be applied, but in practice the term is never very lengthy.

In South Australia, under the Minor Offences Act, magistrates can impose sentences up to six months, and under the Summary Convictions Act, up to three months. The Police Act of 1869 gives power to sentence up to one year, with hard labour, in the case of incorrigible rogues; while under the Quarantine Act of 1877, and the Lottery and Gaming Act of 1875, sentences of two years may be imposed.

Under the Petty Sessions Act of 1867, in Tasmania, any person charged with having committed, or with having aided or abetted in the commission of an offence, in regard to property of a value not exceeding £10, may, on conviction, for a first offence, before two or more justices in Petty Sessions, be imprisoned for any term not exceeding one year, and for a term not exceeding two years for a second or subsequent offence.

**3. Persons Charged at Magistrates' Courts.**—The total number of persons who were charged before magistrates in each State is given below for the five years 1912 to 1916:—

**PERSONS CHARGED BEFORE MAGISTRATES IN THE COMMONWEALTH, 1912 to 1916.**

State.	1912.	1913.	1914.	1915.	1916.
New South Wales ...	89,951	92,107	94,766	86,576	82,036
Victoria ...	53,087	56,058	57,977	63,140	59,315
Queensland ...	27,323	29,166	29,635	30,047	25,206
South Australia ...	10,685	11,818	10,693	9,587	8,322
Western Australia ...	15,092	16,442	17,879	14,864	15,454
Tasmania ...	7,084	7,101	6,481	6,306	5,259
Northern Territory...	219	189	203	287	105
Commonwealth ...	203,441	212,831	217,634	210,807	195,697

As the table shews, there was a decrease in 1916 in charges in all the States with the exception of Western Australia, where there was a small increase due to the preponderance of offences against the public welfare. It may be pointed out, however, that many of these offences consist of technical breaches of various enactments which hardly come within the category of ordinary crime.

Investigation of the returns shews, moreover, that considerable variations in the total for single States are occasioned by breaches of new Acts, or the more stringent enforcement of the provisions of existing Acts. For example, the increase in the Victorian figures for 1915 was due to the inclusion in the summons returns of over 10,000 cases in connection with the Commonwealth Electoral Act. Any deductions drawn from the total returns as to the increase or otherwise of criminality must, therefore, be largely influenced by a careful analysis of the detailed list of offences. (See also § 2, 1, *ante*.)

The figures given in the tabulation above include, of course, a number of people who were wrongly charged, and statistically are not of great importance. The actual number of convictions in connection with the persons who appeared before the lower courts in each year of the period 1912 to 1916 is, therefore, given hereunder. A separate line is added shewing the committals to higher courts.

CONVICTIONS AND COMMITTALS AT MAGISTRATES' COURTS, 1912 to 1916.

(COMMONWEALTH.)

State.			1912.	1913.	1914.	1915.	1916.
New South Wales	...	{ Convictions	77,611	79,079	81,217	73,248	68,615
		{ Committals	1,490	1,529	1,648	1,570	1,656
Victoria	...	{ Convictions	38,646	39,786	41,033	44,947	40,246
		{ Committals	571	611	571	634	552
Queensland	...	{ Convictions	24,996	26,782	27,244	27,625	23,161
		{ Committals	425	417	458	411	304
South Australia...	...	{ Convictions	9,184	10,447	9,280	8,222	7,145
		{ Committals	121	141	135	105	71
Western Australia	...	{ Convictions	13,251	14,590	15,849	13,308	13,595
		{ Committals	162	150	147	*116	141
Tasmania	...	{ Convictions	6,108	6,471	5,852	5,492	4,614
		{ Committals	60	58	67	35	42
Northern Territory	...	{ Convictions	183	134	187	271	86
		{ Committals	8	2	2	1	3
Commonwealth	...	{ Convictions	169,979	177,289	180,662	173,113	157,462
		{ Committals	2,837	2,908	3,028	2,872	2,769

\* Exclusive of four extradited.

4. **Convictions for Serious Crime.**—While the figures given in the preceding table refer to the entire body of convictions, the fact must not be lost sight of that they include a large proportion of offences of a technical nature, many of them unwittingly committed, against various Acts of Parliaments. Cases of drunkenness and minor breaches of good order, which, if they can be said to come within the category of crime at all, at least do so in a very different sense to some other offences, also help to swell the list. The following table has, therefore, been prepared for the purpose of shewing the convictions at magistrates' courts for what may be regarded as the more serious offences, *i.e.*, against the person and property, either separately or conjointly, and forgery and offences against the currency:—

**CONVICTIONS FOR SERIOUS CRIME AT MAGISTRATES' COURTS, 1912 to 1916.**  
(COMMONWEALTH.)

State.	1912.	1913.	1914.	1915.	1916.
New South Wales ...	5,904	6,161	6,100	5,217	6,271
Victoria ...	2,655	2,405	2,705	2,994	2,736
Queensland ...	1,495	1,651	1,497	1,639	1,487
South Australia ...	554	571	665	607	522
Western Australia ...	1,053	1,111	1,237	1,005	1,014
Tasmania ...	566	657	611	558	441
Northern Territory ...	11	12	28	18	37
Commonwealth ...	12,238	12,568	12,843	12,038	12,508

Compared with the population the above figures give the following results per 10,000 inhabitants:—

**CONVICTIONS FOR SERIOUS CRIME PER 10,000 INHABITANTS, 1912 to 1916.**  
(COMMONWEALTH.)

State.	1912.	1913.	1914.	1915.	1916.
New South Wales ...	33.9	34.1	32.9	27.9	33.5
Victoria ...	19.6	17.3	19.0	21.0	19.4
Queensland ...	23.7	25.3	22.2	23.9	21.9
South Australia ...	13.1	13.2	15.1	13.8	12.1
Western Australia ...	34.9	35.4	38.2	31.2	32.2
Tasmania ...	29.5	33.5	30.8	28.0	22.3
Northern Territory ...	32.7	32.8	74.6	40.9	76.3
Commonwealth ...	26.3	26.2	26.1	24.3	25.5

**5. Decrease in Crime.**—The figures quoted in the preceding table shew that during the last five years the rate of serious crime has decreased slightly, while if the comparison be carried back to 1881 the position is seen to be still more satisfactory. The rate of convictions at magistrates' courts per 10,000 of the population is given below for each of the years 1881, 1891, 1901, 1912, and 1916. Only the more serious offences, particularised in the preceding sub-section, have been taken into consideration.

**RATE OF CONVICTIONS FOR SERIOUS CRIME IN THE COMMONWEALTH, 1881-1916.**

Year.						Convictions per 10,000 Persons
1881 ...	...	...	...	...	...	69.3
1891 ...	...	...	...	...	...	44.8
1901 ...	...	...	...	...	...	29.1
1912 ...	...	...	...	...	...	26.3
1916 ...	...	...	...	...	...	25.5

The figures already quoted refer to total convictions, and in respect of individuals necessarily involve a considerable amount of duplication, especially in minor offences, such as petty larcenies, etc., in which the same offender appears before the court many times in the course of the year.

**6. Causes of Decrease in Crime.**—The statistics given shew that there has been a considerable decrease in crime throughout Australia. The results so far quoted are restricted entirely to the lower or magistrates' courts. There has also been a gratifying decrease in regard to offences tried at the higher courts, as will be seen later.



Attempts have been made to account for this decline: *e.g.*, advance in education, enlightened penological methods, etc. Much depends upon what is meant by education. Many classed in census statistics as "educated" can barely read and write. In this connection, moreover, it ought not to be forgotten that collaterally with the introduction of ordinary intellectual education certain people have departed from their pristine virtues. In regard to the deterrent effect of punishment, it may be said that in respect of many offences, notably drunkenness, vagrancy, petty larcenies, etc., it appears to be almost negligible. In general, punishment has declined in brutality and severity, and has improved in respect of being based to a greater extent upon a scientific penological system, though in this latter respect there is yet much to be desired. Recent advances in penological methods will be referred to in a subsequent section. Here it will be sufficient to remark that under the old *régime*, a prisoner on completion of a sentence in gaol was simply turned adrift on society, and in many cases sought his criminal friends, and speedily qualified for readmission to the penitentiary. Frequently he was goaded to this by mistaken zeal on the part of the police, who took pains to inform employers of the fact of a man having served a sentence in gaol. For a long time any assistance to discharged prisoners was in the hands of private organisations, such as the Salvation Army Prison Gate Brigade, but in some of the States, and notably in New South Wales, the authorities themselves look after the welfare of discharged prisoners in the way of finding work, providing tools, etc.

Improvements in the means of communication and identification have been responsible for some of the falling-off noticeable in the criminal returns, the introduction of the Bertillon system having contributed to certainty of identification. In his report for the year 1910 the Inspector-General of Police in New South Wales states that "criminals have a wholesome dread of the finger print system, and I have not the slightest doubt that it is one of the principal causes of the diminution of serious crimes." Part of the improvement may no doubt be referred also to the general amelioration in social conditions that has taken place during the last fifty years.

7. **Drunkenness.**—The number of cases of drunkenness and the convictions recorded in connection therewith during the period 1912 to 1916 will be found in the following table:—

**CASES AND CONVICTIONS.—DRUNKENNESS, 1912 to 1916.**  
(COMMONWEALTH.)

State.	1912.		1913.		1914.		1915.		1916.	
	Cases.	Convictions.	Cases.	Convictions.	Cases.	Convictions.	Cases.	Convictions.	Cases.	Convictions.
New South Wales	32,915	32,720	32,676	32,467	33,393	33,208	26,010	25,863	23,192	23,017
Victoria	13,524	7,446	14,782	7,676	14,437	7,425	13,453	7,086	11,316	6,049
Queensland	14,225	14,213	14,852	14,840	16,510	16,443	16,260	16,196	13,374	13,059
South Australia	5,470	5,416	5,994	5,962	5,282	5,243	4,060	4,027	3,451	3,433
Western Australia	4,908	4,855	5,353	5,302	5,795	5,770	4,836	4,806	4,081	4,045
Tasmania	614	633	729	721	685	661	628	612	486	480
Northern Territory	80	80	61	61	64	64	158	158	208	202
Commonwealth	71,766	65,363	74,447	67,029	76,166	68,814	65,405	58,748	56,110	50,285

The number of convictions is, as might naturally be expected, almost identical with the number of cases. Victoria, however, is an exception, but in this State it is explained that offenders are generally discharged on a first appearance, and no conviction is recorded, a similar procedure being also adopted in the case of those arrested on Saturday and detained in custody till Monday. The logic of excluding these cases from the list of convictions is certainly open to doubt.

The convictions for drunkenness per 10,000 of the population during each of the years from 1912 to 1916 are given hereunder :—

### CONVICTIONS FOR DRUNKENNESS PER 10,000, 1912 to 1916.

(COMMONWEALTH.)

State.	1912.	1913.	1914.	1915.	1916.
New South Wales ...	188.1	179.3	179.3	138.2	123.1
Victoria ...	54.9	55.1	52.2	49.7	42.9
Queensland ...	225.0	227.4	243.6	235.7	192.7
South Australia ...	128.4	137.5	119.1	91.5	79.3
Western Australia ...	161.1	168.9	178.4	149.1	128.5
Tasmania ...	33.0	36.8	33.3	30.7	24.2
Northern Territory...	238.1	166.6	170.6	358.8	416.6
Commonwealth ...	140.7	139.5	139.9	118.7	102.5

The convictions for drunkenness taken by themselves are not an altogether satisfactory test of the relative sobriety of the inhabitants of each State, inasmuch as several important factors must be taken into consideration. The age and sex constitution of the people, for example, is by no means identical in each State, Western Australia having by far the largest proportion of adult males. Owing to the smallness of the population the figures for the Northern Territory are, of course, abnormal. The avocations of the people affect the result, since persons engaged in strenuous callings are, on the whole, more likely to indulge in alcoholic stimulants than those employed in less arduous ones. The distribution of the population is also a factor, the likelihood of arrest or summons for drunkenness obviously being greater in the more densely populated regions, and lastly, allowance must be made for the attitude of the magistracy, the police, and the public generally in regard to the offence.

It is not unusual to supplement statistics of drunkenness by furnishing also the relative consumption of alcoholic beverages. Deductions drawn therefrom will be very misleading if they fail to take into account also the consumption of non-intoxicating beverages such as tea and coffee, and the general habits of the people. Throughout the greater part of Europe, tea and coffee are consumed but sparingly, while Australia, as is well known, is one of the greatest tea-drinking countries of the world.

The following table shewing the consumption of spirits, wine, and beer per head of the population has, with the exception of the figures relating to the Commonwealth, been compiled from returns prepared by the British Board of Trade. The figures quoted for the Commonwealth refer to the year 1916-17, and for the other countries mentioned cover the quinquennium 1907-11.

### CONSUMPTION OF ALCOHOLIC BEVERAGES IN VARIOUS COUNTRIES.

Country.	Consumption per Head of Population.			Country.	Consumption per Head of Population.		
	Spirits.	Wine.	Beer.		Spirits.	Wine.	Beer.
United Kingdom...	Imp. Galls. 0.76	Imp. Galls. 0.27	Imp. Galls. 26.94	Canada ...	0.96	0.11	6.22
Commonwealth...	0.61	0.50	11.62	German Empire	1.37	1.12	22.86
New Zealand ...	0.78	0.15	9.88	France ...	1.38	34.32	8.48
Union of South Africa ...	0.33	0.70	1.28	United States ...	1.04	0.54	16.72

**8. Treatment of Drunkenness as Crime.**—Though the problem of the correct method of dealing with dipsomania is by no means an easy one, it seems fairly clear that the present plan of bringing offenders before magistrates, and subjecting them to the penalty of imprisonment or fine, has little deterrent effect, as the same offenders are constantly reappearing before the courts. Further, the casting of an inebriate into prison, and placing him in his weakened mental state in the company of professional malefactors, doubtless tends to swell the ranks of criminals and certainly tends to lower his self-respect. Examination of the prison records in New South Wales some years ago disclosed the fact that over 40 per cent. of the gaol population had commenced their criminal career with a charge of drunkenness. During the last few years the dangers of moral contamination in this way have been more accurately appreciated, and a system of classification of prisoners has been adopted whereby the petty offender is as far as possible kept from association with the more evilly-disposed. The Comptroller-General of Prisons in Queensland stated in his report for the year 1907 that "the drunken habit in many cases is merely one of many symptoms which jointly indicate the existence of a graver condition than simple habitual drunkenness."

**9. Remedial Treatment of Inebriates.**—Legislation has been passed in each State providing for the commitment of inebriates to special Government institutions. The laws in the various States are as follows:—New South Wales, Inebriates Act 1912; Victoria, Inebriates Act 1915; Queensland, Inebriate Institutions Act 1896; South Australia, Inebriates Act 1908 and 1913; Western Australia, Inebriates Act 1912; Tasmania, Inebriates Act 1885, Inebriate Hospitals Act 1892. Curative work was first undertaken by the Government of New South Wales in 1907. In most cases the institutes are connected with the gaols, and, naturally, custodial measures are still a strong feature in their management; nevertheless, the results of remedial measures have been encouraging. In Victoria an institute purporting to be wholly remedial was founded in 1907. It may be mentioned that there are private retreats in various places in the Commonwealth, but these are not officially subsidised or inspected.

**10. Treatment of Habitual Offenders.**—In New South Wales the Habitual Criminal Act of 1905 gives judges the power of declaring a prisoner, after a certain number of sentences, to be an habitual criminal, and as such to be detained until, in the opinion of the authorities, he is fit to be at large. At the end of 1916 there were twenty-three persons in prison under this Act. Since the passing of the Act sixty-eight males and one female have been declared to be habitual criminals. Of the thirty-five habitual criminals released under section 7 of the Act up to the end of 1916, four have been re-committed to prison. The Indeterminate Sentences Act came into force in Victoria in July, 1908, and up to the end of June, 1917, 414 prisoners had been admitted to the three reformatory prisons, and 286 had been released on probation on the recommendation of the Indeterminate Sentences Board, and ten by special authority of the Governor. Of the 276, ninety-eight have completed their probation of two years and passed out of control by the Board, sixty remain in various stages of probation, thirty-four were still in the parole stage, and eighty-four have again become delinquent. The provisions of the Habitual Criminals Amendment Act of 1907 were put into force in South Australia in 1909, and twenty criminals had been declared to be habitual offenders up to the end of 1916. Of these, eleven had been released after serving the indeterminate portion of their sentence. The Criminal Code Amendment Act of 1914, which makes provision for the detention and control of habitual criminals, was assented to in Queensland on the 3rd December, 1914, but up to the end of 1916 no prisoners had been brought under its provisions. Naturally it will be some time before the full effect of these measures on the prevalence of crime can be estimated. The Comptroller-General of Prisons in New South Wales states, however, that the system has exercised a wholesome deterrent effect on the criminal who is not a prisoner, while the Indeterminate Sentence Board in Victoria states that it has become impressed with the advantages which this form of sentence offers, both from a reformatory and deterrent standpoint, over the ordinary sentence.

During the period in which the Habitual Criminals and Offenders Act of 1907 has been in force in Tasmania, sixty-six men and two women have been released under its provisions, and the results, according to the Sheriff, have been satisfactory.

**11. Treatment of First Offenders.**—In all the States and in New Zealand statutes dealing with first offenders have been in force for some years, the dates of passing the Acts being as follows: New South Wales, 1894; Victoria, 1890; Queensland, 1887; South Australia, 1887 and 1913; Western Australia, 1892; Tasmania and New Zealand, 1886. The method of procedure is practically the same in all cases, *i.e.*, with regard to most first offenders the magistrate or judge is empowered to allow the offender to go free on recognisances being entered into for his good behaviour for a certain period. In practice, this humane law has been found to work excellently, very few of those to whom its provisions have been extended having been found to relapse into crime.

**12. Children's Courts.**—Special courts for the trial of juvenile offenders have been established in New South Wales, Victoria, Western Australia, and New Zealand within the last few years, while Children's Courts, although not under that name, are practically provided for by the State Children's Acts of 1895 and 1900 in South Australia. The object of these courts is to avoid, as far as possible, the unpleasant surroundings of the ordinary police court.

**13. Committals to Superior Courts.**—In a previous section it has been pointed out that comparisons of criminality based on a consideration of the total returns from magistrates' courts are somewhat inadequate, seeing that the figures include numbers of cases which are merely technical breaches of laws having in some instances a purely local significance. The committals to higher courts give a better basis of comparison, although even in this connection allowance must be made for the want of uniformity in jurisdiction. The table below gives the number of committals in each year from 1912 to 1916, with the proportion of such committals per 10,000 of the population. The rates are shewn on a separate line.

### COMMITTALS TO SUPERIOR COURTS, 1912 to 1916.

(COMMONWEALTH.)

State.				1912.	1913.	1914.	1915.	1916.
New South Wales	...	...	No.	1,923	1,573	1,699	1,633	1,707
			Rate	11.1	8.7	9.2	8.7	9.1
Victoria	...	...	No.	571	611	571	634	552
			Rate	4.2	4.4	4.0	4.4	3.9
Queensland	...	...	No.	425	417	458	411	304
			Rate	6.7	6.4	6.8	6.0	4.5
South Australia	...	...	No.	121	141	135	105	71
			Rate	2.9	3.3	3.1	2.4	1.6
Western Australia	...	...	No.	162	150	147	116*	141
			Rate	5.4	4.8	4.5	3.6	4.1
Tasmania	...	...	No.	60	58	67	35	42
			Rate	3.1	3.0	3.4	1.8	2.1
Northern Territory	...	...	No.	8	2	2	1	3
			Rate	23.8	5.5	5.3	2.3	6.2
Commonwealth	...	...	No.	3,270	2,952	3,079	2,935	2,820
			Rate	7.0	6.1	6.3	5.9	5.7

\* Exclusive of four extradited.

The above figures shew that the rate of committals for serious crime has decreased by 19 per cent. during the last five years, but if the comparison be carried farther back, it will be found that, as compared with the earlier years, there has been a considerable improvement. This will be evident from an examination of the following figures, which shew the rate of committals per 10,000 persons in Australia at various periods since 1861:—

#### RATE OF COMMITTALS IN AUSTRALIA, 1861 to 1916.

Year ...	...	...	...	...	1861.	1871.	1881.	1891.	1901.	1916.
Committals per 10,000 inhabitants	...	...	...	...	22	14	12	11	8	6

The decline in proportion to population since 1861 has therefore been about 73 per cent.

### § 3. Superior Courts.

1. **Convictions at Superior Courts.**—The total number of convictions at superior courts, together with the rate per 10,000 of the population, is shewn below for each of the years 1912 to 1916:—

#### CONVICTIONS AT SUPERIOR COURTS, 1912 to 1916.

(COMMONWEALTH.)

State.				1912.	1913.	1914.	1915.	1916.
New South Wales	...	...	No.	620	772	810	843	815
			Rate	3.6	4.3	4.4	4.5	4.4
Victoria	...	...	No.	501	506	494	533	462
			Rate	3.7	3.6	3.5	3.7	3.3
Queensland	...	...	No.	384	343	382	351	266
			Rate	6.1	5.3	5.7	5.1	3.9
South Australia	...	...	No.	86	86	93	74	52
			Rate	2.0	2.0	2.1	1.7	1.2
Western Australia	...	...	No.	92	92	84	66	91
			Rate	3.1	2.9	2.6	2.0	2.9
Tasmania	...	...	No.	25	28	41	19	30
			Rate	1.3	1.4	2.1	1.0	1.5
Northern Territory	...	...	No.	3	1	1	1	1
			Rate	8.9	2.7	2.7	2.3	2.1
Commonwealth	...	...	No.	1,711	1,828	1,905	1,887	1,717
			Rate	3.7	3.8	3.9	3.8	3.5

The rate in 1901 was 4.6 per 10,000, and the decrease to the end of 1916 was, therefore, practically one-fourth.

In considering the above figures allowance must be made for the various factors enumerated in a preceding paragraph. Tasmania, it will be noted, shews the smallest proportion of serious crime, while the figures available shew that the island State is relatively the smallest consumer of alcoholic beverages. That a definite causal relation exists between the figures shewn by the respective tables is not, however, obvious.

2. **Offences for which Convictions were Recorded at Superior Courts.**—In the following table will be found a classification of the principal offences for which persons were convicted at the higher courts during each year of the period 1912 to 1916. Owing to lack of uniformity in the presentation of the returns for the several States the information is confined to the chief offences against the person only. In the case of Victoria the information is incomplete regarding the convictions on summons committals. The figures quoted refer to convictions in the Commonwealth during the period dealt with.

### CONVICTIONS FOR SERIOUS CRIME, SUPERIOR COURTS, 1912 to 1916.

(COMMONWEALTH.)

Offences.	1912.	1913.	1914.	1915.	1916.
Murder and attempts at ...	33	38	42	25	22
Manslaughter ...	16	14	15	15	13
Rape and crimes of lust ...	88	71	67	90	77
Other offences against the person ...	221	298	300	226	209

While the individual totals shew considerable fluctuations, the returns generally manifest considerable improvement. The general total of convictions for all offences against the person shews a decline since 1901 of about 26 per cent, and since 1912 of over 10 per cent.

3. **Capital Punishment.**—The table below gives the number of executions in each State during the period 1912 to 1916:—

### EXECUTIONS, 1912 to 1916.

(COMMONWEALTH.)

State.	1912.	1913.	1914.	1915.	1916.
New South Wales ...	1	...	...	...	2
Victoria ...	1	...	...	...	2
Queensland ...	...	2	...	...	...
South Australia ...	...	...	...	...	...
Western Australia ...	...	1	1	1	...
Tasmania ...	...	1	1	...	...
Commonwealth ...	2	4	2	1	4

In the early days of the history of Australia the penalty of death was attached to a large number of offences, many of which at the present time would be dealt with in the lower or magistrates' courts. With the growth of settlement, and the general amelioration in social and moral conditions, the list was, however, considerably curtailed, and the existing tendency is practically to restrict death sentences to cases of murder. It may be remarked that in cases of rape, which is a capital offence in some of the Australian States, the penalty has been but sparingly inflicted during the last few years. Juries are reputed to be loth to convict on this charge, owing to the uncertainty whether sentence of death will be pronounced.

During the period 1861 to 1880 the annual average number of executions in the Commonwealth was nine, from 1881 to 1900 the average was six, for the period 1901 to 1910 the figure stood at four, while the average for the last quinquennium was three.

#### § 4. Prisons.

1. **Prison Accommodation and Prisoners in Gaol.**—The table below shews the number of prisons in each State and the accommodation therein at the end of 1916:—

##### PRISONS AND PRISON ACCOMMODATION, 1916.

(COMMONWEALTH.)

State.	Number of Prisons.	Accommodation in—		Prisoners at End of Year.
		Separate Cells.	Wards.	
New South Wales ... ..	29	2,303	...	1,451
Victoria ... ..	17	1,438	646	773
Queensland ... ..	13	586	380	328
South Australia ... ..	13	760	453	237
Western Australia ... ..	24	640	816	207
Tasmania ... ..	2	190	280	45
Northern Territory ... ..	1	3	48	14
Commonwealth ... ..	99	5,920	2,623	3,055

The figures for Western Australia and the Northern Territory are exclusive of aborigines.

The number of prisoners in gaol, exclusive of debtors, at the 31st December in each of the years 1912 to 1916, is given below. A separate line is added in each instance shewing the proportion per 10,000 of the population.

##### PRISONERS IN GAOL, 1912 to 1916.

(COMMONWEALTH.)

State.	1912.	1913.	1914.	1915.	1916.
New South Wales ... { Number	1,257	1,456	1,643	1,579	1,451
... { Proportion	7.2	8.0	8.9	8.5	7.8
Victoria ... { Number	880	863	898	861	773
... { Proportion	6.5	6.2	6.3	6.1	5.5
Queensland ... { Number	529	450	518	413	328
... { Proportion	8.4	6.9	7.7	6.0	4.8
South Australia ... { Number	287	288	341	282	237
... { Proportion	6.8	6.6	7.7	6.4	5.5
Western Australia ... { Number	356	284	277	238	207
... { Proportion	11.8	9.0	8.6	7.5	6.6
Tasmania ... { Number	69	50	50	55	45
... { Proportion	3.6	2.6	2.6	2.7	2.3
Northern Territory ... { Number	12	7	8	12	14
... { Proportion	35.7	19.1	21.3	26.3	28.9
Commonwealth ... { Number	3,390	3,398	3,735	3,440	3,055
... { Proportion	7.3	7.1	7.6	6.9	6.2

From the preceding table it will be seen that the proportion to population of prisoners in gaol has fallen by 15 per cent. during the last five years, but, if the comparison be carried farther back, the position is seen to be more favourable, the prisoners in gaol in the Commonwealth numbering as much as 16 per 10,000 of the population in 1891.

**2. Improvement of Penological Methods.**—During recent years Australia, in common with most other civilised countries, has introduced considerable modifications and improvements in methods of prison management. Under the old *régime*, punishment partook more or less of the character of reprisal for wrongdoing, and the idea of constituting the prison as a reformatory agency was in the background. But of recent years there has been an earnest attempt at effecting a moral reformation in the unfortunates who lapse into crime. This aspect of prison management has been specially prominent in New South Wales. A short account of the re-organisation of the prison system in this State appears in preceding Year Books (see No. V., p. 922), but considerations of space preclude its repetition here. At the present time it is found that good results have followed the principles of scientific classification and restricted association of prisoners, together with the provision of separate institutions for the treatment of inebriates. Special efforts are put forward to provide reproductive work for prisoners, and no capable able-bodied man is engaged in labour that demeans him, but on the other hand is encouraged to take pride and pleasure in good work. There are five principal gaols in which prisoners are classified according to history, etc. The large establishments at Goulburn, Bathurst, and Parramatta deal respectively with first offenders, previously convicted but hopeful cases, and incorrigibles. At Long Bay there is a well-designed reformatory institution for females, providing for effective classification, and a penitentiary used as a distributing centre and a place of detention for short-term prisoners from the metropolis. The first-class minor gaols at Albury, Armidale, Broken Hill, Grafton and Maitland, are convenient centres for the reception of country prisoners, and also for the treatment of special cases. There are also several second-class minor gaols and police gaols where short-sentenced prisoners from the surrounding districts are dealt with. In New South Wales the system of carrying on afforestation by prison labour, somewhat after the manner of that in vogue for several years in New Zealand, has been introduced, and in 1911 a site near Tuncurry, on the Manning River, was selected for the purpose of initiating the scheme. Pine trees of various kinds have been planted, the seedlings set out in 1916 numbering over 167,000 in addition to 170,000 pine seeds sown. The daily average number of prisoners in camp was 28.9, and the cost per head about 24s. per week, or 3s. 5d. per day for each prisoner. So far the scheme appears to be a great success, the prisoners being healthy, cheerful, well-behaved, and industrious. Each prisoner has his own comfortable hut, where he takes his meals and sleeps, and may, if he so desires, write his letters. There are no armed or night guards at the camp. During the year 1914 a property of 107 acres was purchased, near the Emu Plains railway station, for the purpose of establishing a prison farm, and this was opened in April, 1915, with ten prisoners. This institution was disestablished in 1916, when it was taken over by the Department of Agriculture, and beyond selecting the prisoners for work on the farm, the Prisons Department has no further responsibility. That there is some connection between mental and physical health and crime is proved by the condition in which many persons are received into gaol. In a large number of instances prisoners are found to be suffering from contagious diseases. Under the Prisoners Detention Act such persons may be kept in gaol until cured, but, unfortunately, the provisions of the Act do not apply to short-sentenced prisoners detained in lieu of paying fines, many of whom are known to be afflicted with disease. A further reform, introduced in 1915, was the provision of the Shaftesbury Inebriate Institution for the treatment of non-criminal inebriates. In 1916 accommodation was provided for voluntary paying guests who wish to undergo treatment.



In 1902 the system of finger-print identification of criminals was introduced, and by the year 1903 bureaux had been established in the various States for the exchange of records. Very successful results have attended the introduction of the system.

Space will not permit of more than a passing reference to the improvements brought about in prison management in the other States. In Victoria there is an excellent system of classification and allocation of prisoners in various grades to different gaols, while at the important penal settlement at Pentridge a careful segregation into several classes is carried out. In common with the other States the latest humane methods of accommodation and prison treatment have for some time been employed. An afforestation camp known as McLeod Settlement, French Island, was opened in 1916, and on the 30th June, 1917, there were thirty-five inmates. The trees planted numbered 300,000. It is stated that the experiment has resulted in improvement, both in demeanour and physique of prisoners, and it is hoped that in many cases it will be conducive to a return to honest citizenship. A prison farm has also been established about three miles from the prison at Castlemaine, and the inmates are taken to and fro daily. It is proposed to provide accommodation later on for housing a certain number of prisoners on the farm site.

Queensland prisons have been considerably modernised during the last few years. The prison for females at Brisbane has been built on the radiating plan, and embodies the latest ideas in penological methods. Classification of prisoners has been fully carried out in the male and female divisions of Brisbane prison, at Rockhampton prison, and at the Stewart's Creek penal establishment. It is proposed to erect a new prison establishment at St. Helena, embodying the most modern features in design. Amongst recent reforms are the reduction of the period of separate treatment undergone by prisoners sentenced to hard labour or penal servitude, a remodelling of the remission clauses, and allowance of more liberal privileges in the way of correspondence and visits from friends. Electric light has been installed in the Brisbane prison, and prisoners are allowed to read up to 8 o'clock each evening.

Unusual circumstances have combined to keep crime at a low point in South Australia. In the first place there was never any transportation of criminals to the State, while in the earlier years of its history South Australian lawbreakers were transported elsewhere. The discovery of gold in the neighbouring colonies was also responsible for the drawing away of turbulent spirits who might later on have caused trouble. The present system was drafted mainly on English and European lines by the late W. R. Boothby, C.M.G., and has since been as far as possible adapted to modern penological procedure. It is proposed to establish an afforestation camp prison at the Bangham Forest Reserve on similar lines to that at Tuncurry in New South Wales. Excellent work for the benefit and assistance of discharged prisoners is performed by the Prisoners' Aid Association.

A Royal Commission in 1911 recommended the adoption of various reforms in connection with the prison system of Western Australia. The bulk of these were carried out, and included, amongst other things, an extension of the principle of separate treatment, improvement in prisoners' dietary scale, more satisfactory arrangements in regard to remission of sentences, and improvements in regard to hours of labour, leave of absence, etc., for the staff. The separate system has, however, been abolished. Amongst other improvements recently introduced may be mentioned the grant of an eight hours day to officers, enlargement and improved hygiene of cells, additional library facilities, assistance to discharged prisoners by provision of railway passes and monetary aid, appointment of committees to look after the welfare of discharged prisoners, and the remodelling of the "mark" system. The military method of control at Rottnest Island, coupled with considerable privileges to well-conducted prisoners, has proved very successful.

The daily average number of prisoners in confinement in Tasmanian gaols during the quinquennium 1911-12 to 1915-16 was about 63. There are penal establishments at Hobart and Launceston, and at the former the prisoners were concentrated in the northern wing during 1915-16. A new workshop also was erected, and the sanitary and lighting conditions were remodelled.

### § 5. Civil Courts.

1. **Lower Courts.**—The transactions of the lower courts on the civil side during each of the last five years are given in the table hereunder. As pointed out previously, the jurisdiction of the courts is by no means uniform in the various States.

#### LOWER COURTS.—CIVIL CASES, 1912 to 1916.

(COMMONWEALTH.)

State.				1912.	1913.	1914.	1915.	1916.
New South Wales	...	Cases	No.	32,531	40,265	37,472	39,828	35,724
		Amount	£	93,592	106,809	107,810	110,229	101,530.
Victoria	...	Cases	No.	36,043	39,911	41,497	41,055	38,573
		Amount	£	190,485	204,175	207,863	188,542	170,086.
Queensland	...	Cases	No.	14,962	15,716	16,015	15,729	14,094
		Amount	£	61,047	64,518	66,226	68,337	64,502
South Australia	...	Cases	No.	18,905	21,288	21,681	17,765	16,505.
		Amount	£	60,813	74,623	74,627	80,918	50,515.
Western Australia	...	Cases	No.	12,735	14,549	16,974	17,259	15,776.
		Amount	£	60,774	67,470	66,864	61,169	51,050.
Tasmania	...	Cases	No.	4,487	5,194	5,813	6,081	4,879.
		Amount	£	28,571	34,425	81,610	67,152	30,739.
Commonwealth	...	Cases	No.	119,663	136,923	139,452	137,717	125,551
		Amount	£	495,282	552,020	605,000	576,347	468,422

During the year 1916-17 the civil causes at lower courts in the Northern Territory amounted to 101 and the amount of judgments to £2003.

The figures just given represent the returns from Petty Sessions Courts in New South Wales and Victoria, the Petty Debts cases in Queensland, the Local Courts of South Australia and Western Australia, and the Court of Requests in Tasmania.

2. **Superior Courts.**—In the next table will be found the transactions on the civil side in the Superior Courts during each of the years 1912 to 1916.

The New South Wales returns are to some extent defective, as the figures quoted for amount of judgments include, up to 1913, in the case of the Common Law jurisdiction of the Supreme Court, the total judgments signed, while in the case of the other States the figures refer to sums actually adjudged after trial. For New South Wales, also, the transactions of district courts refer to the total amounts sued for, and, not the sums actually awarded after trial. Statistically the chief importance of the table consists in the fact that it shews a decline in litigiousness in Australia.

## SUPERIOR COURTS.—CIVIL CASES, 1912 to 1916.

(COMMONWEALTH.)

State.		1912.	1913.	1914.	1915.	1916.
New South Wales	{ Causes No.	847	926	864	845	902
	{ Amount £	528,384	568,761	*328,429	*293,697	*290,642
Victoria	{ Causes No.	637	617	710	713	536
	{ Amount £	75,886	91,428	91,903	93,695	104,965
Queensland	{ Causes No.	108	133	129	129	124
	{ Amount £	16,013	22,932	19,156	22,165	20,335
South Australia...	{ Causes No.	26	44	27	21	14
	{ Amount £	29,352	9,688	17,358	2,882	2,482
Western Australia	{ Causes No.	496	546	578	367	348
	{ Amount £	78,068	79,534	37,610	37,581	36,042
Tasmania	{ Causes No.	113	118	385	282	308
	{ Amount £	7,866	7,486	28,159	17,112	17,539
Commonwealth	{ Causes No.	2,227	2,384	2,693	2,357	2,232
	{ Amount £	735,569	779,829	522,615	467,132	472,005

\* Exclusive of judgments signed, Supreme Court, the amount not being recorded.

During the year 1916-17 the civil causes in the higher courts of the Northern Territory numbered 13 and the amount of judgments was returned as £2288.

3. Divorces and Judicial Separations.—The number of divorces and judicial separations in each State during the period 1912 to 1916 is shewn below :—

## DIVORCES AND JUDICIAL SEPARATIONS, 1912 to 1916.

(COMMONWEALTH.)

State.	1912.		1913.		1914.		1915.		1916.	
	Divorces.	Judicial Separations	Divorces.	Judicial Separations	Divorces.	Judicial Separations	Divorces.	Judicial Separations	Divorces.	Judicial Separations
New South Wales	349	12	317	9	297	6	349	6	348	11
Victoria	250	2	237	2	244	1	218	1	206	1
Queensland	17	1	31	1	29	1	27	...	24	...
South Australia	13	...	8	...	20	...	12	...	15	...
Western Australia	36	...	37	...	21	1	31	2	13	...
Tasmania	8	...	8	...	7	...	7	...	2	...
Northern Territory	...	...	...	...	1	...	1	...	...	...
Commonwealth	673	15	638	12	619	9	645	9	608	12

The average annual number of divorces and judicial separations in the Commonwealth at decennial periods from 1871 to 1910 and for the six years 1911-16 is given on next page :—

### DIVORCES AND JUDICIAL SEPARATIONS, 1871 to 1916.

	1871-1880.	1881-90.	1891-1900.	1901-10.	1911-16.
Commonwealth ...	29	70	358	401	627

The bulk of the divorces and judicial separations refer, as the table shews, to New South Wales and Victoria, the Acts of 1899 and 1889 in the respective States making the separation of the marriage tie comparatively easy. In some statistical works it is customary to compare the divorces in any year with the marriages in the same year. The comparison is, however, quite valueless, as there is no necessary connection between the figures.

4. **Probates.**—The number of probates and letters of administration granted, together with the value of the estates concerned, is shewn below for each State for the period 1912 to 1916:—

### PROBATES AND LETTERS OF ADMINISTRATION, 1912 to 1916.

(COMMONWEALTH.)

State.			1912.	1913.	1914.	1915.	1916.
New South Wales	...	{ Number	3,648	3,679	4,438	5,088	5,336
		{ Value £	13,389,806	8,443,068	9,997,615	10,813,889	11,687,910
Victoria	...	{ Number	4,585	4,483	4,451	4,449	5,448
		{ Value £	8,533,502	8,367,862	8,481,720	8,759,728	8,917,481
Queensland	...	{ Number	755	765	765	896	967
		{ Value £	2,730,039	2,640,017	2,331,224	2,720,696	3,041,514
South Australia	...	{ Number	1,246	1,373	1,418	1,515	1,661
		{ Value £	2,383,238	2,214,241	3,050,075	2,894,517	2,031,206
Western Australia	...	{ Number	552	580	577	682	957
		{ Value £	841,800	607,972	1,009,677	936,107	1,699,297
Tasmania	...	{ Number	465	415	336	418	423
		{ Value £	983,618	680,477	727,126	793,106	871,950
Commonwealth	...	{ Number	11,251	11,295	12,035	13,048	14,792
		{ Value £	28,862,003	22,953,637	25,597,437	26,918,243	28,249,358

As may naturally be expected, the figures in the above table, giving the value of property left each year, shew considerable variations.

5. **Bankruptcies.**—The returns in bankruptcy during each of the last five years are given in the following table.

For several reasons comparisons drawn from the figures in the following table are of little value. In the first place, the statements of assets and liabilities are notably unsatisfactory, particularly in regard to the former. Then, again, there is wide dissimilarity in regard to the laws in force in the various States and the method of procedure thereunder in connection with bankruptcy. Further, there are no means of knowing how many persons in each State who were in a bankrupt condition made private arrangements with their creditors either personally or by intervention of a solicitor. The figures quoted in the table exclude the private arrangements in Victoria and South Australia, and the liquidations and compositions in Queensland and Tasmania.

## BANKRUPTCIES, 1912 to 1916.

(COMMONWEALTH.)

State.		1912.	1913.	1914.	1915.	1916.
New South Wales ...	{ Number	395	351	405	405	360
	{ Liabilities £	210,504	208,755	323,111	428,700	383,448
	{ Assets £	153,633	144,038	141,068	166,748	303,893
Victoria ...	{ Number	404	455	450	436	337
	{ Liabilities £	265,046	440,318	273,682	414,439	213,989
	{ Assets £	159,723	237,868	171,295	273,605	127,730
Queensland ...	{ Number	246	232	210	238	203
	{ Liabilities £	45,508	60,385	53,947	65,716	68,904
	{ Assets £	17,020	21,720	36,293	35,633	46,700
South Australia ...	{ Number	154	185	187	135	139
	{ Liabilities £	188,483	169,616	184,220	204,089	160,601
	{ Assets £	135,771	104,623	115,621	136,420	151,332
Western Australia ...	{ Number	84	75	77	53	34
	{ Liabilities £	50,652	65,284	46,234	38,008	52,345
	{ Assets £	35,221	51,928	23,456	34,576	52,024
Tasmania ...	{ Number	38	46	30	40	16
	{ Liabilities £	7,013	16,673	13,476	15,548	13,530
	{ Assets £	2,635	9,831	4,251	9,461	7,585
Northern Territory ...	{ Number	3	4	1	1	1
	{ Liabilities £	1,123	724	119	106	96
	{ Assets £	44	18	...	39	306
Commonwealth ...	{ Number	1,324	1,348	1,360	1,308	1,090
	{ Liabilities £	768,329	961,655	893,689	1,166,606	892,913
	{ Assets £	504,047	570,025	491,984	656,582	689,570

6. **High Court of Australia.**—Under the provisions of section 71 of the Commonwealth Constitution Act, the judicial power of the Commonwealth is vested in a Federal Supreme Court, called the High Court of Australia, and in such other courts as the Parliament creates or invests with federal jurisdiction. The Federal High Court possesses both original and appellate jurisdiction. The powers of the court are defined in Chapter III. of the Constitution Act and in the Judiciary Acts of 1903-15. At present the court consists of a Chief Justice and six other judges. Sittings of the court are held in the capitals of the various States as occasion may require. The following statement shews the transactions of the High Court for the quinquennium 1912-16:—

## COMMONWEALTH HIGH COURT TRANSACTIONS, 1912 to 1916.

Items.	1912.	1913.	1914.	1915.	1916.
I. ORIGINAL JURISDICTION.					
Number of writs issued ...	63	83	75	126	141
Number of causes entered for trial ...	7	9	6	12	14
Verdicts for plaintiffs ...	6	5	5	6	7
Verdicts for defendants ...	...	2	1	6	3
Otherwise disposed of ...	20	16	31	40	60
Amount of judgments ...	£769	£6,556	£5,304	£4,966	£4,479
II. APPELLATE JURISDICTION.					
Number of appeals set down for hearing ...	89	66	71	85	67
Number allowed ...	43	33	25	23	23
Number dismissed ...	36	26	38	39	24
Otherwise disposed of ...	10	7	8	23	10

## COMMONWEALTH HIGH COURT TRANSACTIONS, 1912 TO 1916—continued.

Items.	1912.	1913.	1914.	1915.	1916.
III. AMOUNT OF FEES COLLECTED.					
Amount in each year...	£590	£692	£656	£808	£756

During the year 1916 the Court dealt also with other matters as follows:—

Appeals from Assessments under the Land Tax Assessment Act...	10
Special cases stated for the opinion of the Full Court ...	13
Applications for Prohibition ...	3
Applications under the Trading with the Enemy Act ...	5

7. **Commonwealth Court of Conciliation and Arbitration.**—A more or less detailed statement regarding the operation of this Court, which was established under the provisions of the Commonwealth Conciliation and Arbitration Act of 1904-15 will be found in Section xxvii.

## § 6. Cost of Administration of Justice.

The table below shews the expenditure from Consolidated Revenue during each of the last five years in connection with the administration of justice in each of the States. Expenditure on police and prisons has been separately shewn. With regard to the figures quoted for "other" expenditure, a slight allowance has to be made for the fact that some extraneous expenditure has been included which it was found impossible to disentangle from the total, but the amount is in no instance large.

EXPENDITURE ON JUSTICE, 1912 to 1916.  
(STATES.)

State.		1912.	1913.	1914.	1915.	1916.
		£	£	£	£	£
New South Wales	Police	578,767	563,406	562,694	603,347	649,093
	Gaols	89,712	91,279	92,285	92,529	91,913
	Other	262,174	276,043	282,716	286,924	287,419
Victoria	Police	348,227	354,264	380,724	365,821	356,885
	Gaols	50,952	54,776	57,272	57,791	59,614
	Other	165,078	165,091	192,222	169,309	165,789
Queensland	Police	306,431	304,817	302,633	302,209	322,422
	Gaols	28,603	28,950	30,989	32,981	30,803
	Other	100,156	101,011	101,687	136,619	140,643
South Australia	Police	116,847	129,834	132,445	131,580	127,632
	Gaols	17,776	19,159	23,436	22,177	22,052
	Other	41,392	48,203	33,277	33,006	36,854
Western Australia	Police	129,556	126,532	133,452	131,806	125,446
	Gaols	22,291	21,403	22,339	23,265	22,321
	Other	77,544	77,182	79,142	86,790	79,510
Tasmania	Police	43,236	45,237	45,972	45,952	47,320
	Gaols	5,664	6,103	7,071	7,261	7,013
	Other	19,524	20,877	21,763	21,338	22,190
Northern Territory	Police	10,609	10,614	10,307	10,216	10,260
	Gaols	2,309	2,289	2,501	2,128	2,875
	Other	2,513	2,136	1,941	1,453	2,744
Commonwealth	Police	1,533,673	1,564,704	1,598,227	1,590,931	1,639,058
	Gaols	217,307	223,959	235,893	238,132	236,591
	Other	668,381	690,543	712,748	735,439	735,149

With the exception of that of the Northern Territory, the expenditure shewn in the foregoing table is that incurred by the State Governments only, and does not include expenditure in connection with the Federal High Court, which is shewn hereunder for the period 1912-13 to 1916-17:—

## EXPENDITURE ON FEDERAL HIGH COURT, 1912-13 to 1916-17.

Year.	Amount.	Year.	Amount.
	£		£
1912-13 ... ..	23,334	1915-16 ... ..	31,447
1913-14 ... ..	32,709	1916-17 ... ..	31,780
1914-15 ... ..	31,037		

Other items of federal legal expenditure also not included in the table are Court of Conciliation and Arbitration £11,068, Crown Solicitor £10,766, and general £13,880. Excluding Patents and Copyrights, the total expenditure by the federal law authorities for the year 1916-17 was £71,627.

For the purposes of comparison the figures in the first table above have been reduced to a population basis, and the results are given in the table following:—

## EXPENDITURE ON JUSTICE PER INHABITANT, 1912 to 1916.

(STATES.)

State.	1912.	1913.	1914.	1915.	1916.
	s. d.	s. d.	s. d.	s. d.	s. d.
New South Wales ... ..	(Police 6 8 Gaols 1 0 Other 3 0)	(Police 6 7 Gaols 1 0 Other 3 0)	(Police 6 4 Gaols 1 0 Other 3 0)	(Police 6 6 Gaols 1 0 Other 3 2)	(Police 7 0 Gaols 1 0 Other 3 1)
Victoria ... ..	(Police 5 2 Gaols 0 9 Other 2 4)	(Police 5 1 Gaols 0 9 Other 2 4)	(Police 5 4 Gaols 0 10 Other 2 8)	(Police 5 2 Gaols 0 10 Other 2 5)	(Police 5 1 Gaols 0 11 Other 2 4)
Queensland ... ..	(Police 9 8 Gaols 0 11 Other 3 2)	(Police 9 4 Gaols 0 11 Other 3 1)	(Police 9 0 Gaols 0 11 Other 3 0)	(Police 8 11 Gaols 1 0 Other 4 0)	(Police 9 8 Gaols 0 11 Other 4 2)
South Australia ... ..	(Police 5 7 Gaols 0 10 Other 1 11)	(Police 6 0 Gaols 0 11 Other 2 3)	(Police 6 0 Gaols 1 1 Other 1 6)	(Police 6 0 Gaols 1 0 Other 1 6)	(Police 5 11 Gaols 1 0 Other 1 7)
Western Australia ... ..	(Police 8 7 Gaols 1 6 Other 5 1)	(Police 8 1 Gaols 1 4 Other 4 11)	(Police 8 3 Gaols 1 5 Other 4 11)	(Police 8 3 Gaols 1 6 Other 5 6)	(Police 8 1 Gaols 1 5 Other 5 2)
Tasmania ... ..	(Police 4 6 Gaols 0 7 Other 2 0)	(Police 4 7 Gaols 0 7 Other 2 2)	(Police 4 7 Gaols 0 8 Other 2 2)	(Police 4 7 Gaols 0 9 Other 2 1)	(Police 4 9 Gaols 0 8 Other 2 3)
Northern Territory ... ..	(Police 63 2 Gaols 13 9 Other 15 0)	(Police 58 0 Gaols 12 6 Other 11 8)	(Police 52 0 Gaols 12 7 Other 9 9)	(Police 44 9 Gaols 9 4 Other 6 4)	(Police 43 1 Gaols 12 1 Other 11 6)
Commonwealth ... ..	(Police 6 7 Gaols 0 11 Other 3 0)	(Police 6 6 Gaols 0 11 Other 3 0)	(Police 6 6 Gaols 0 11 Other 3 0)	(Police 6 6 Gaols 1 0 Other 3 0)	(Police 6 9 Gaols 1 0 Other 3 0)

Owing to the smallness of the white population, large area to be policed, and cost of supplies, transport, etc., the figures for the Northern Territory must necessarily appear somewhat abnormal.

The total expenditure in the Commonwealth in connection with the administration of justice in the various States has risen from ten shillings per inhabitant in 1901 to ten shillings and ninepence in 1916. Police expenditure has increased by about a shilling per head, the average for gaols is about twopence per head less, while the expenditure on courts and the remaining machinery of justice has slightly decreased during the same period. Including federal expenditure, the outlay in 1916-17 amounted to about eleven shillings per head.

## SECTION XXIV.

## PUBLIC BENEVOLENCE.

## § 1. Introductory.

1. **General.**—Charity and charitable effort in Australia may be classified under three headings, viz.:—(a) State; (b) public; (c) private. To the first belong all institutions wholly provided for by the State, such as the principal lunatic asylums in the various States, the Government hospitals in Western Australia, and the Government asylums for infirm in New South Wales. The second class comprises public institutions of two kinds, viz.:—(i.) Institutions partially subsidised by the State or State endowed, but receiving also private aid, and (ii.) those wholly dependent upon private aid. To the former division belong such institutions as the principal metropolitan hospitals. In the latter are included institutions established and endowed by individuals for the benefit of the needy generally. All charitable movements of a private character are included in the third group.

A more or less accurate statistical account is possible in classes (a) and (b), but in regard to (c) complete tabulation is, for obvious reasons, impossible. Moreover, public response to special appeals, and summary relief in kind, cannot be statistically recorded. Hospitals, orphanages, homes, benevolent asylums, etc., naturally attract the largest share of charitable aid; but there are numerous minor charities dependent upon private beneficence. In institutions which receive Government aid, management and finance are usually relegated to executive bodies.

The scope which economic and industrial conditions in Australia afford for the exercise of natural ability, and the comparatively wide distribution of wealth throughout the Commonwealth, operate to prevent the development of a permanent pauper class, and at the same time lessen in a dual way the burden of charity. This result is brought about by the increase, on the one hand, of the number of people whose prosperity enables them to relieve the indigent and unfortunate, and by the reduction, on the other, of the number who need assistance. Enactments of State Legislatures have decreed short hours and a liberal holiday allowance for large numbers of persons engaged in industrial and other pursuits, and, even in occupations not covered by Act of Parliament, the general conditions of employment often provide a considerable amount of leisure. This, coupled with an equable climate, enables the community to spend much of its time in the open air, with resultant advantages to its physique and general health. No poor-rate is levied in Australia, and Government aid without return is required only for the aged and disabled. Moreover, although Old Age Pensions, Invalid Pensions, and Maternity Allowances are paid by the Commonwealth, the payments are looked upon rather in the light of a citizen's right than as a charity. Reference to these matters will be found in § 4, *Miscellaneous*, chap. xxxiv.



To meet special and temporary conditions, various relief works have been started from time to time, in which the able-bodied who may be forced to seek official relief are required to make some return for the assistance afforded.

In each of the States there are Government asylums for the care of the insane, and the condition of these unfortunates has been steadily ameliorated by the general advance in psychiatry.

Young children deprived of parental training and control are cared for and educated in orphanages and industrial schools, and those who have been guilty of some specific offence, or who are beyond effective parental control, are committed to "reformatories."

From time to time relief funds have been organised for famine-stricken territories (*e.g.*, China, India, etc.), or for places where plague, flood, fire, or earthquake has shewn the need of urgent relief. Special funds are also raised for such as are disabled or bereaved through war. Complete statistical information in regard to these forms of charity is not, however, available. It may be mentioned that the daily Press frequently accepts the duties of collectorship in charity appeals. In regard to subscriptions to the various patriotic funds, which have been instituted in consequence of the war, the total for Australia, up to the end of July, 1916, has been estimated at £5,758,000.

**2. Charity Reforms.**—The evident overlapping of charitable effort has on various occasions led to discussion regarding methods of collection and distribution. The great desideratum in charity organisation is that the available aid should be relegated solely to the relief of distress and suffering. The true interests of the sick poor would thus be conserved, and the real intention of the donors fulfilled. With greater public attention, improved administration has been brought about. Societies to prevent overlapping have been formed, resulting in improved economical collection and distribution of charitable aid, and a better system of using the available accommodation.

Other proposed reforms aim at ascertaining the cause of poverty and crime, and finding the necessary palliative. Increased provision of better houses and workrooms and improved sanitation are advocated, together with more stringent legislative measures to enforce cleanliness and healthy modes of life. Further, factory legislation, Health Acts, etc., have enacted provisions for safeguarding dangerous machinery, and permitting only competent persons to be employed thereon.

**3. Tabulation of Charities Statistics.**—Differences in the organisation of charities prevent uniform tabulation of statistics for all the States, but certain of the larger features of the statistics of benevolence have been combined for the whole Commonwealth, and are shewn for a period extending over five years. Where the combination has been for dissimilar periods the nearest years have been taken. Satisfactory tabulation for other charities is not yet possible.

## § 2. The Larger Charities of Australia.

**1. Hospitals.**—All of the State capitals have several large and well-equipped hospitals, and there is at least one in every important town. In large centres there are hospitals for consumptives, women, children, infectious diseases, incurables, etc. The

number of hospitals in Australia, with the admissions, patients treated, deaths, and expenditure, is shewn in the following table. Only general hospitals are tabulated, since the working of "special" institutions is not properly comparable with those which treat every class of case.

#### HOSPITALS IN THE COMMONWEALTH, 1912 to 1916.

Particulars.	1912.	1913.	1914.	1915.	1916.
Number of institutions ...	368	381	389	398	391
Number of beds ...	14,574	15,225	15,345	16,374	15,811
Admissions during year ...	139,378	145,908	155,531	169,892	166,588
Indoor patients treated ...	144,692	152,077	164,349	179,829	176,279
Deaths ...	11,235	11,362	11,468	12,809	13,128
Expenditure ...	£ 1,102,134	1,264,605	1,255,658	1,280,461	1,351,160

In addition to those admitted to the institutions there are large numbers of out-patients. The exact number of these cannot be given, but a rough estimate of distinct cases for 1916 places the total at about 300,000.

Fuller details of hospital statistics are given for 1916 in the table below, the States and Northern Territory of the Commonwealth being shewn separately :—

#### GENERAL HOSPITALS.—NUMBER, STAFFS, AND ACCOMMODATION OF HOSPITALS IN THE COMMONWEALTH, 1916.

Particulars.	N.S.W.	Victoria.	Q'land.	S.A.	W.A.	Tas.	N.T.	C'wlth.
Number of Hospitals—								
Government ...	4	...	2	8	23	2	2	41
Other ...	147	50	94	19	29	13	...	350
Total ...	151	50	94	27	52	15	2	391
Medical Staff—								
Males ...	769	87	166	95	50	34	2	1,226
Females ...	...	...	17	6	...	...	...	...
Total ...	769	87	183	101	50	34	2	1,226
Nursing Staff and Attendants—								
Males ...	80	16	276	70	78	2	2	524
Females ...	1,872	816	939	451	420	164	6	4,668
Total ...	1,952	832	1,215	521	498	166	8	5,192
Accommodation—								
Number of dormitories, etc.	1,004	423	550	183	183	129	9	2,480
Capacity in cubic ft.	7,282,721	4,627,744	3,713,277	1,473,057	1,916,249	785,258	51,500	19,849,806
Number of beds ...	6,065	3,394	3,283	1,085	1,353	596	35	15,811
Cubic ft. to each bed	1,200	1,363	1,131	1,358	1,416	1,318	1,471	1,255

In addition to the accommodation provided in the ordinary wards, a considerable amount of accommodation for certain classes of cases is furnished in out-door or verandah sleeping places. Full particulars are not available for all States; in New South Wales, the provision amounts to 473 beds; in Tasmania, 64 beds, and in Northern Territory, 22 beds.

**GENERAL HOSPITALS.—PATIENTS TREATED IN HOSPITALS IN THE  
COMMONWEALTH, 1916.**

Particulars.	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	N.T.	C'wth.
<b>Indoor Relief: Distinct Persons</b>								
Treated—								
Males ... ..	39,776	19,052	23,999	6,283	7,375	4,117	270	100,872
Females ... ..	36,080	12,914	13,138	5,590	4,129	3,495	61	75,407
<b>Total ... ..</b>	<b>75,856</b>	<b>31,966</b>	<b>37,137</b>	<b>11,873</b>	<b>11,504</b>	<b>7,612</b>	<b>331</b>	<b>176,279</b>
<b>Inmates at beginning of Year—</b>								
Males ... ..	2,401	1,176	1,322	378	526	235	14	6,052
Females ... ..	1,962	850	699	276	254	206	3	4,250
<b>Total ... ..</b>	<b>4,363</b>	<b>2,026</b>	<b>2,021</b>	<b>654</b>	<b>780</b>	<b>441</b>	<b>17</b>	<b>10,302</b>
<b>Admissions and Re-admissions during Year—</b>								
Males ... ..	37,375	17,876	22,677	6,244	6,849	3,862	280	95,183
Females ... ..	34,118	12,064	12,439	5,555	3,874	3,289	66	71,405
<b>Total ... ..</b>	<b>71,493</b>	<b>29,940</b>	<b>35,116</b>	<b>11,799</b>	<b>10,723</b>	<b>7,171</b>	<b>346</b>	<b>166,588</b>
<b>Discharges—Recovered:</b>								
Males ... ..	27,126	14,577	20,493	4,191	3,037	3,579	233	73,236
Females ... ..	27,028	10,274	11,339	3,762	1,777	3,142	44	57,366
<b>Total ... ..</b>	<b>54,154</b>	<b>*24,851</b>	<b>*31,832</b>	<b>7,953</b>	<b>4,814</b>	<b>*6,721</b>	<b>277</b>	<b>110,602</b>
<b>Relieved:</b>								
Males ... ..	6,332	...	...	1,021	2,765	...	30	10,148
Females ... ..	4,324	...	...	984	1,521	...	4	6,833
<b>Total ... ..</b>	<b>10,656</b>	<b>†</b>	<b>†</b>	<b>2,005</b>	<b>4,286</b>	<b>†</b>	<b>34</b>	<b>116,981</b>
<b>Unrelieved:</b>								
Males ... ..	982	149	481	351	342	37	3	2,345
Females ... ..	850	109	308	383	206	24	3	1,883
<b>Total ... ..</b>	<b>1,832</b>	<b>258</b>	<b>789</b>	<b>734</b>	<b>548</b>	<b>61</b>	<b>6</b>	<b>4,228</b>
<b>Not stated:</b>								
Males ... ..	...	904	134	4	9	9	...	1,060
Females ... ..	...	539	50	1	6	7	...	603
<b>Total ... ..</b>	<b>...</b>	<b>1,443</b>	<b>134</b>	<b>5</b>	<b>15</b>	<b>16</b>	<b>...</b>	<b>1,663</b>
<b>Deaths—</b>								
Males ... ..	3,094	2,072	1,661	679	697	274	14	8,491
Females ... ..	1,933	1,071	747	397	320	163	6	4,637
<b>Total ... ..</b>	<b>5,027</b>	<b>3,143</b>	<b>2,408</b>	<b>1,076</b>	<b>1,017</b>	<b>437</b>	<b>20</b>	<b>13,128</b>
<b>Inmates at End of Year—</b>								
Males ... ..	2,242	1,350	1,230	376	525	218	24	5,965
Females ... ..	1,945	921	694	304	298	159	2	4,323
<b>Total ... ..</b>	<b>4,187</b>	<b>2,271</b>	<b>1,924</b>	<b>680</b>	<b>823</b>	<b>377</b>	<b>26</b>	<b>10,288</b>
<b>Average Daily Number Resident—</b>								
Males ... ..	2,536	2,200	2,008	{ 414 321	572 272	238 196	11 2	10,963
Females ... ..	2,193							
<b>Total ... ..</b>	<b>4,729</b>	<b>2,200</b>	<b>2,008</b>	<b>735</b>	<b>844</b>	<b>434</b>	<b>13</b>	<b>10,963</b>

\* Including relieved.

† Included in recovered.

The revenue and expenditure of the institutions were as follows:—

**GENERAL HOSPITALS.—REVENUE AND EXPENDITURE, 1916.**

Particulars.	N.S.W.	Vic.*	Q'land.	S. Aust.	W. Aust.	Tas.	N.T.	C'wlth.
	£	£	£	£	£	£	£	£
Revenue—								
Fees of patients, etc.	85,551	34,953	36,509	14,553	19,782	11,362	596	203,306
Government grants	289,839	65,954	127,175	64,574	86,633	26,765	5,649	666,589
Other ...	187,999	155,175	79,569	13,406	23,240	8,068	...	467,457
Total ...	563,389	256,082	243,253	92,533	129,655	46,195	6,245	1,337,352
Expenditure—								
Buildings ...	84,636	50,990	26,471	6,288	128,717	1,724	430	1,351,160
Salaries ...	194,024	201,413	92,019†	33,631		21,355	2,756	
Maintenance ...	234,859	136,528	51,308	51,308		14,958	2,463	
Other ...	42,002	6,646	9,004	2,200		6,738	...	
Total ...	555,521	259,049	264,022	93,427	128,717	44,775	5,649	1,351,160

\* Year ended 30th June, 1916.

† Including rents.

2. **Principal Hospitals in each State.**—The tables here given refer to general hospitals. In addition there are hospitals for "specials" (such as women's, children's, and infectious diseases hospitals), and institutions nearly allied to hospitals (such as consumptive sanatoria). Where the institutions carry on general hospital relief, they are still included with those establishments.

(i.) *New South Wales.* A Government hospital, with a staff of 17 medical officers and accommodation for 411 patients, is established at Little Bay, near Sydney. Altogether, there are four women's hospitals, one for women and children, and three children's hospitals in the metropolis. The Royal Prince Alfred Hospital, with a medical staff of 67, and with 410 beds, is the largest metropolitan endowed institution. Amongst other large metropolitan hospitals may be mentioned the Sydney Hospital, with a medical staff of 79 and with 334 beds, St. Vincent's with 49 doctors and 190 beds, and Lewisham with 24 medical attendants and 169 beds. In extra-metropolitan areas the Waterfall Hospital for Consumptives, which is a Government institution, provides accommodation for 300 patients. The Newcastle Hospital has 100 beds and a medical staff of 16. At the Carrington Convalescent Home at Camden, 110 patients may be admitted. The hospital in the Broken Hill district can accommodate 138.

(ii.) *Victoria.* There are several large metropolitan hospitals in Victoria. The largest of these, the Melbourne Hospital, has 327 beds; the Austin Hospital for Incurables has 230, the Alfred Hospital 168, St. Vincent's 138, and the Homœopathic 98. Amongst the country institutions, Bendigo has 218 beds, Geelong 205, and Ballarat 170.

(iii.) *Queensland.* Of the metropolitan hospitals, the largest is the Brisbane General, which can accommodate 316 patients. The Children's Hospital has 167 beds, the Diamantina 144, and the Mater Misericordiæ 112. Ipswich Hospital, with 146 beds, is the largest of the country institutions, followed by Toowoomba with 128, Townsville with 105, Rockhampton with 100, Mackay and Maryborough 96 each, Charters Towers 92, Mt. Morgan 71, and Bundaberg 70.

(iv.) *South Australia.* Including the Consumptive Home and Infectious Diseases Block, the Adelaide Hospital can accommodate a total of nearly 440 patients. The most important of the country hospitals are Port Augusta, Port Pirie, and Wallaroo, with 61, 49, and 48 beds respectively.

(v.) *Western Australia.* Information regarding the capacity of the Western Australian hospitals is not available, but some idea of their comparative importance may be gained from the figures relating to cases treated. In the metropolis, 3964 cases were treated at the Perth Hospital in 1916, and 896 at the Perth Children's. Of the country hospitals, Kalgoorlie returned 1358 cases, Fremantle 781, and Woorloo 533.

(vi.) *Tasmania*. There are well-equipped general hospitals in Hobart and Launceston. The former has a medical staff of 11 and can accommodate 185 patients, and the latter has 190 beds and a medical staff of two. Hospitals for women have been established in both centres, and there is a sanatorium for consumptives at Newtown. Outside the metropolitan area, the Devon Cottage Hospital has a medical staff of 3, and beds for 95 patients; the Lyell District Hospital can accommodate 35 patients, and there are nine other institutions in important country centres.

(vii.) *Northern Territory*. In addition to the hospitals at Darwin and Pine Creek, arrangements have been made for the supply of medicines and first aid to outlying stations. Great improvements have recently been made by the Public Health Department in the sanitation of Darwin. Close supervision is also exercised over the sanitary conditions at railway camps.

3. **Benevolent and Destitute Asylums.**—A marked increase has taken place in the amount of aid bestowed upon the aged. Two elements, each of them independent of the growth of population, have influenced this increase. One is, that the general age of the community has advanced—the large flow of immigration of fifty and sixty years ago having been mostly of persons in the prime of life; the other is the increased regard paid in all British communities to the well-being of the helpless. The result in Australia has been that numerous establishments have been founded for the housing and protection of such as are no longer able to care for themselves. The institutions are supported by Government and municipal aid, public subscriptions, charity performances, bequests, etc., and in many cases relatives of indigent and afflicted persons contribute to their maintenance.

The impossibility of an entirely satisfactory statistical tabulation in regard to all forms of charitable aid is especially marked in the case of benevolent institutions, since the conditions under which they have been established in the different centres in the Commonwealth have caused divergence in their development and in the classes of cases treated by them. For example, in Western Australia the Home for Destitute Women includes a maternity ward, for which the statistics are not separately kept. Since the predominating function of the institution is aid to the destitute, it has been included among benevolent asylums. In Victoria, nine of the hospitals are also benevolent asylums, and they are included wholly under the former. In South Australia, the Destitute Asylum includes lying-in and children's departments.

#### BENEVOLENT INSTITUTIONS.—REVENUE AND EXPENDITURE, 1916.

Particulars.	N.S.W.	Victoria.	Q'land.	S.A.	W.A.	Tas.	C'with.
<b>Revenue—</b>	£	£	£	£	£	£	£
Government aid ...	93,948	20,281	33,800	44,620	55,580	7,387	255,616
Municipal aid ...	...	891	...	...	...	...	891
Public subs., legacies, etc....	...	10,292	1,188	...	...	...	11,490
Fees ...	16,750	10,000	...	324	126	1,728	28,928
Other ...	...	2,644	2,516	179	...	138	5,477
<b>Total...</b>	<b>110,698</b>	<b>44,108</b>	<b>37,514</b>	<b>45,123</b>	<b>55,706</b>	<b>9,253</b>	<b>302,402</b>
<b>Expenditure—</b>							
Buildings ...	4,504	775	1,144	10,592	...	167	17,189
Maintenance ...	105,234	44,908	36,182	34,531	55,706	6,101	282,662
Other ...	960	3,441	230	...	...	2,985	7,616
<b>Total...</b>	<b>110,698</b>	<b>49,124</b>	<b>37,556</b>	<b>45,123</b>	<b>55,706</b>	<b>9,253</b>	<b>307,460</b>

(i.) *Government Asylums for the Infirm, New South Wales*. There were three asylum hospitals in New South Wales at the end of 1916. Rookwood, the largest of these, had an average number resident of 1352, Newington had 757, and Liverpool 564. At the

Cottage Homes, situated at two separate localities in Parramatta, the average number resident was about 350. The State Labour Depot and Refuge at Randwick had 59 inmates at the end of 1916.

(ii.) *Benevolent Asylums, Victoria.* Besides the asylums attached to hospitals, there are eight institutions in Victoria. The Melbourne Benevolent Asylum had 693 inmates in 1916, the Victorian Home for Aged and Infirm 452, and the Convent of the Little Sisters of the Poor 220. Of the country benevolent asylums, Ballarat had 199 inmates, Bendigo 171, and Castlemaine 136.

(iii.) *Benevolent Asylums, Queensland.* There are four institutions in Queensland, with 939 beds. The most important of these is at Dunwich (Stradbroke Island) with 821 beds, while there are small institutions at Nundah, Rockhampton, and Toowoomba. At the end of 1916 the inmates of the four institutions numbered 1066.

(iv.) *Destitute Asylum, Adelaide.* Outside of hospitals and lunatic asylums the destitute of South Australia are dealt with and relieved at the Destitute Asylum, Adelaide. The institution includes lying-in and children's departments. In the asylum the number of inmates at the end of 1916 was 311.

(v.) *Homes for the Destitute, Western Australia.* There are two of these homes in Western Australia supported by public funds. The Old Men's Home at Claremont had 587 inmates at the end of 1916, and the Women's Home, Fremantle, which receives children also, had 121 adult inmates. The children admitted during the year numbered 45.

(vi.) *Charitable Establishments, Tasmania.* There are two principal Government charitable establishments in Tasmania. The New Town Infirmary and Consumptive Home, which has 220 beds, had 178 inmates at the end of June, 1917, and the Home for Invalids, Launceston, which has 21 beds, had 18 inmates on the same date.

4. **Orphanages, Industrial Schools, etc.**—The organisation of charitable effort varies greatly in regard to orphans and waifs. In many institutions shelter and some form of industrial training are offered to destitute children of all classes, whether orphans or not, while some of those styled orphanages do not confine their relief to orphans strictly so called. The figures in the next table are those for institutions where, it is believed, the principal effort is on behalf of those who are really orphans:—

#### ORPHANAGES IN COMMONWEALTH, 1912 to 1916.

Particulars.	1912.	1913.	1914.	1915.	1916.
Number of institutions ... ..	41	42	50	50	48
Admissions ... ..	1,563	1,514	2,340	2,376	2,118
Total number of inmates during year ...	5,057	4,720	4,344	4,503	5,061
Deaths ... ..	18	18	46	48	35
Expenditure* ... ..	£ 63,362	72,091	86,390	93,758	79,526

\* Incomplete. Expenditure is not available for some orphanages.

(i.) *New South Wales.* The care of destitute and neglected children is entrusted to the State Children's Relief Board, whose officers are charged with a strict supervision regarding the welfare of the children and the treatment of them by those to whom they are boarded out. Provision is made for instruction in various trades and callings, and many of the children become useful members of society. The number of children under the Board's supervision in 1916-17 was 11,976. The board's expenditure in that year was £168,623, or £14 2s. per child.

There are also fifteen orphanages, and various farm homes, country homes for children, etc., with upwards of 1000 children under care.

There are several reformatory and industrial schools maintained by the State. At the Parramatta Industrial School for Girls, to which a Training Home was attached in 1912, there were on 31st December, 1916, 155 inmates—125 in the Industrial School, and 30 in the Training Home. At the Farm Home for boys, Gosford, 80 boys were admitted, and 75 discharged. Of the latter, 5 were apprenticed and 59 released on probation.

(ii.) *Victoria*.—There are ten orphanages in Victoria, with 1613 beds. The total number under care in 1915-16 was 2101, of whom 1637 were inmates on 30th June, 1916. The expenditure in 1915-16 was £32,253. The Melbourne Protestant Asylum had 308 inmates on the 30th June, 1916, the Ballarat Asylum 215, Nazareth House, Ballarat, 228, Geelong Roman Catholic Boys 201, and Melbourne Roman Catholic Boys 184.

At the end of 1916 there were six schools for neglected children and seven reformatory schools in the State. Of these, two in each class are wholly controlled by the Government, being used merely as receiving and distributing depots. The children are sent thence to situations, foster homes, or other institutions dealing with State wards. The other schools are under private management, receiving an allowance for State wards. Many of the reformatory children are placed with friends, or licensed out. On 31st December, 1916, the wards of the State numbered 10,780—classed mostly as neglected children. There were also 37 children free from legal control, who, being incapacitated, were maintained by the State. The total expenditure for 1916 was £167,799, of which £159,929 was borne by the Government.

(iii.) *Queensland*.—There are ten orphanages in Queensland. The number under care on 31st December, 1916, was 1077, and the expenditure for the year £23,104.

There are also six industrial and reformatory schools, with 105 boys and 82 girls under detention at the end of 1916. The total number of children under State control at the end of 1916 was 5764. The gross cost was £134,158, of which £127,346 was borne by the Government.

(iv.) *South Australia*.—The State Children's Department exercises a supervision over the probationary and industrial schools and the reformatories. The total number of admissions into these institutions in 1916-17 was 294. The number of inmates on the 30th June, 1917, was 199, in addition to which 1645 were placed out, or had been adopted or apprenticed. There were no deaths amongst children in industrial schools and reformatories, and of those placed out and in other institutions eight died. The number of children under State control on 30th June, 1917, was 1844. The expenditure for 1916-17 was £40,724, of which the Government aid was £37,344.

There are three orphan asylums. The number under care during 1916 was 312, of whom 231 were inmates on 31st December, 1916. There was one death in the year, and the expenditure amounted to £2889.

(v.) *Western Australia*.—In Western Australia there were, at the end of 1916, four orphanages, three orphanages and industrial schools, and two industrial schools, containing 446 boys and 356 girls. There were also eight boys and thirteen girls at the Government Receiving Depot. The total number of children in charge of the State Children's Department at the end of 1916 was 1761, and the net cost £23,454.

(vi.) *Tasmania*.—There are three industrial schools and one orphanage under benevolent institutions in the State. Admissions in 1916-17 numbered thirty-five and total inmates during the year 174. No deaths occurred. The expenditure was £3540.

The New Town Training School for boys had 32 inmates at the end of June, 1916.

Under the boarding-out system upwards of 200 children are placed out. The total number of children under State control at the end of June, 1917, was 256, the gross cost to the State of children's relief being £4040, of which £461 represents parents' contributions.

(vii.) *Neglected Children.* The following table summarises the number of neglected children under State Departments. Included in the figures are children boarded out with their own mothers, the numbers being, New South Wales 7923, Victoria 4984, Queensland 3101, South Australia 291, Western Australia 434, Tasmania 7; the total for the Commonwealth being 16,140.

#### STATE RELIEF OF NEGLECTED CHILDREN.—TRANSACTIONS OF STATE DEPARTMENTS, 1916.

Particulars.	N.S.W.*	Vict.	Qld.	S.A.†	W.A.	Tas.	Cwlth.
Number of Children under State control at end of year—							
Males ... ..	†	5,602	3,030	1,008	827	137	†
Females ... ..	†	5,178	2,734	836	934	119	†
Total ... ..	11,976	10,780	5,764	1,844	1,761	256	32,381
Gross cost to State of children's relief	£174,503	£167,799	£127,346	£37,344	£24,387	£4,040	£535,419
Receipts, from parents' contributions, etc. ... ..	5,890	7,870	6,811	3,380	933	461	25,335
Net cost ... ..	168,623	159,929	120,535	33,964	23,454	3,579	510,084

\* For year ended 5th April following. † For the year ended 30th June, 1917.

‡ Details not available.

5. *Lepers.*—Lazarets for the treatment of lepers have been established in New South Wales (Little Bay); Queensland (Peel Island, near Brisbane, and Dayman Island, Torres Strait); and the Northern Territory (Mud Island). Quarantine and isolation stations have also been used for the segregation of patients. A great deal of information concerning the beginning and progress of leprosy in Australia was collected and published by the late Dr. J. Ashburton Thompson, while Chief Government Medical Officer and President of the Board of Health, New South Wales, from whose reports the following table has been compiled, up to and including the year 1915, later figures not being available:—

#### CASES OF LEPROSY RECORDED IN THE COMMONWEALTH, 1855 to 1915.

State.	1855 to 1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.
New South Wales ...	140	4	2	2	5	3	4	2	4	3
Victoria ...	*27	...	...	...	...	...	1	...	1	1
Queensland ...	†186	21	23	8	6	7	4	12	8	10
South Australia ...	37	1	...	...	...	...	...	...	...	...
Western Australia ...	4	...	3	4	3	2	...	...	...	5
Tasmania ...	1	...	...	...	...	...	...	...	...	...
Northern Territory‡	...	...	...	...	...	...	...	1	...	...
Total ...	*†395	26	28	14	14	12	9	15	13	19

\* In addition, some Chinese.

† In addition, many Kanakas.

‡ As from the year 1911.



6. **Hospitals for the Insane.**—The method of compiling insanity statistics has been fairly uniform throughout the States, but the various methods of observing the early stages of the development of insanity introduce an element of uncertainty which considerably reduces the value of comparison. In the summary given below, licensed houses (except as regards expenditure) are included in the total for New South Wales and Victoria, but in the latter State the figures are exclusive of reception houses and observation wards in gaols:—

## HOSPITALS FOR INSANE,\* 1912 to 1916.

(COMMONWEALTH.)

Particulars.	1912.	1913.	1914.	1915.	1916.
Number of institutions ... ..	35	35	35	34	35
Number of beds ... ..	15,911	16,115	16,432	16,417	16,673
Admissions ... ..	3,017	3,153	3,339	3,118	3,268
Discharged as recovered, relieved, etc. ...	1,365	1,415	1,574	1,491	1,451
Deaths ... ..	1,311	1,292	1,270	1,341	1,459
Expenditure ... ..	£693,772	772,984	755,697	815,200	861,258

\* Exclusive of receiving wards at two general hospitals and including six licensed houses for insane in Victoria.

The proportion of insane, as well as the total number returned as under treatment, has changed very little during recent years. In the next table the number of insane under official care in Australia is given, and in the table following, the proportion of insane to population.

The number of insane persons in institutions in Australia at the end of each of the years 1912-1916 was as follows:—

## INSANE PERSONS IN THE COMMONWEALTH, 1912 to 1916.

State.	1912.	1913.	1914.	1915.	1916.
New South Wales ... ..	6,470	6,639	6,906	7,063	7,240
Victoria ... ..	5,470	5,631	5,729	5,767	5,793
Queensland ... ..	2,322	2,370	2,448	2,441	2,517
South Australia ... ..	1,082	1,082	1,080	1,137	1,158
Western Australia ... ..	876	933	981	1,009	1,045
Tasmania ... ..	534	526	537	522	545
Commonwealth ... ..	16,754	17,181	17,681	17,939	18,298

For the period embraced in the tables Victoria shows the highest rate of insanity, roughly one in 250 persons. It is stated that this is chiefly owing to the proportionately greater number of old persons in that State. On the other hand, in South Australia a considerably lower insanity rate has prevailed, averaging about one in 400, Tasmania following closely with an average of about one in 370.

## PROPORTION OF INSANE, 1912 to 1916.

(COMMONWEALTH).

State.	1912.	1913.	1914.	1915.	1916.
PER 1000 OF THE POPULATION.					
New South Wales ...	3.64	3.62	3.71	3.78	3.92
Victoria ...	3.96	3.98	4.00	4.04	4.15
Queensland ...	2.65	3.60	3.62	3.55	3.70
South Australia ...	2.50	2.46	2.42	2.58	2.67
Western Australia ...	2.86	2.91	3.04	3.13	2.38
Tasmania ...	2.71	2.61	2.67	2.62	2.72
Commonwealth ...	3.54	3.53	3.58	3.62	3.75

Consequent upon the development of a more rational attitude towards the treatment of mental cases, a greater willingness is being shewn to submit necessary cases to treatment at an earlier stage than formerly. Hence an increase in the number of recorded cases does not necessarily imply an actual increase in insanity. It is important to bear this in mind, because the small progressive increase in the numbers in the first of the immediately preceding tables is probably to be attributed largely, if not solely, to this circumstance.

The leading features in regard to institutions for the care of the insane are given below for 1916:—

## HOSPITALS FOR THE INSANE.—NUMBER, STAFFS, ACCOMMODATION, 1916.

(COMMONWEALTH).

Particulars.	N.S.W.	Vict.*	Qld.	S.A.	W.A.	Tas.	C'wlth.
Number of Institutions—							
Government ...	9	9	3	1	3	1	26
Private ...	3	†5	...	...	1	...	9
Total ...	12	14	3	1	4	1	35
Medical Staff—							
Males ...	20	20	7	2	2	3	54
Females ...	1	...	...	...	1	...	2
Total ...	21	20	7	2	3	3	56
Nursing Staff & Attendants—							
Males ...	613	540	181	92	126	83	1,635
Females ...	491	516	126	61	55	57	1,306
Total ...	1,104	1,056	307	153	181	140	2,941
Accommodation—							
No. of dormitories ...	‡341	1,424	504	¶	34	334	¶
Capacity in cubic feet ...	‡3,548,975	3,760,637	1,457,902	¶	672,157	706,704	¶
No. of beds ...	‡6,238	5,132	2,526	1,189	1,034	554	16,673
Cubic feet to each bed ...	{ \$600 } { ‡11,000 }	733	577	¶	650	1,276	¶

\* Exclusive of Receiving House, Royal Park, and of the Receiving Wards at Bendigo and Geelong hospitals. † There are five private licensed houses in Victoria, in which there were 90 cases at end of 1916. Other figures for these private asylums are not available. ‡ Government hospitals only. § Ordinary dormitory. ¶ Hospital dormitory. ¶ Information not available.

## HOSPITALS FOR THE INSANE.—PATIENTS TREATED, 1916.

Particulars.	N.S.W.	Vic.*	Q'ld.	S.A.	W.A.	Tas.	C'wlth.
Admissions & re-admissions during year—							
Males ... ..	856	403	301	168	146	42	1,916
Females ... ..	570	369	171	134	70	38	1,352
Total ... ..	1,426	772	472	302	216	80	3,268
Discharges—Recovered—							
Males ... ..	313	105	116	73	46	12	665
Females ... ..	233	100	107	60	26	11	537
Total ... ..	546	205	223	133	72	23	1,202
Relieved and unrelieved—							
Males ... ..	47	43	11	11	10	1	123
Females ... ..	37	43	8	11	3	4	106
Total ... ..	84	86	19	22	13	5	229
Absconders not retaken—							
Males ... ..	9	5	...	2	4	...	20
Females ... ..	...	...	...	...	...	...	...
Total ... ..	9	5	...	2	4	...	20
Deaths—							
Males ... ..	396	251	105	81	62	18	913
Females ... ..	214	200	49	43	29	11	546
Total ... ..	610	451	154	124	91	29	1,459
No. of patients on books at end of year—							
Males ... ..	4,244	2,882	1,616	638	744	280	10,404
Females ... ..	2,996	2,911	901	520	301	265	7,894
Total ... ..	7,240	5,793	2,517	1,158	1,045	545	18,298
Average daily number resident—							
Males ... ..	4,084	2,607	1,581	637	724	276	9,909
Females ... ..	2,737	2,541	897	506	290	261	7,232
Total ... ..	6,821	5,148	2,478	1,143	1,014	537	17,141
No. of patients on books at end of year per 1000 of population—							
Males ... ..	4.60	4.32	4.83	3.17	4.65	2.80	4.33
Females ... ..	3.20	3.97	2.77	2.25	2.02	2.65	3.19
Persons ... ..	3.90	4.14	3.76	2.68	3.38	2.73	3.75
Average number of patients resident in hospitals for insane per 1000 of mean population—							
Males ... ..	4.34	3.83	4.47	3.11	4.34	2.77	4.04
Females ... ..	2.96	3.48	2.77	2.22	1.96	2.65	2.95
Persons ... ..	3.65	3.65	3.66	2.64	3.22	2.71	3.49

\* Exclusive of inmates of the Receiving House, Royal Park, and of Receiving Wards attached to the hospitals at Bendigo and Geelong, and of five private licensed houses.

In some of the States it is the practice to allow persons well advanced towards recovery to leave the institutions and reside with their relatives or friends, but they are nevertheless under supervision of the asylum authorities and are kept on the books. The figures for admission, etc., include absconders captured and readmitted. Very few escapees succeed in avoiding capture.

The revenue of Government asylums is small in comparison with their cost, and consists chiefly of patients' fees. The proportion of expenditure borne by the State amounts to about 87 per cent.

### HOSPITALS FOR THE INSANE (GOVERNMENT ONLY), REVENUE AND EXPENDITURE, 1916.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
Revenue (exclusive of Government Grants)—	£	£	£	£	£	£	£
Fees of patients ...	47,638	21,848	7,585	8,595	3,927	4,830	94,423
Other ...	2,614	...	4,508	753	1,158	790	9,823
Total ...	50,252	21,848	12,093	9,348	5,085	5,620	104,246
Expenditure—							
Salaries ...	170,730	111,731	49,770	15,814	29,825	14,395	392,265
Maintenance ...	145,379	124,506	60,396	28,307	29,290	19,423	468,993
Buildings ...	...	11,970	20,555	...		...	...
Other ...	23,625	...	3,431	2,111	...	...	...
Total ...	339,734	248,207	134,152	46,232	59,115	33,818	861,258

(i.) *New South Wales.* The latest return available shews that the average length of residence in the hospitals of persons who died was 4 years 8 months for males and 5 years 9 months for females; and that of persons who were discharged was 1 year 2 months for males and 1 year 7 months for females.

There are also two State reception houses, where suspected persons are confined for observation, being subsequently either discharged or transferred to lunatic asylums. In two of the gaols observation wards have been instituted, with similar functions.

(ii.) *Victoria.* The average residence in the hospitals of those who died was 8 years 3 months for males and 12 years 11 months for females; that of those discharged, 1 year 3 months for males and 1 year 9 months for females.

There are lunacy wards in two of the general hospitals; also a State receiving house where persons are placed for observation, and subsequently discharged or transferred to asylums.

(iii.) *Queensland.* The average residence in the institutions of those who died was 7 years 7 months for males and 10 years 3 months for females; and of those who were discharged, 14 months for males and 12 months for females.

There are also three reception houses for insane, which act as depots to which patients are sent with a view to determining whether their mental illness is of a merely temporary character, readily to be relieved, or is of such a nature as to need further treatment at the State asylums.

(iv.) *South Australia.* The average residence of those who died was 7 years and 1 month for males and 5 years for females; of those discharged, 1 year and 3 months for males and 2 years and 2 months for females.

(v.) *Western Australia.* The period of residence of those who died during the year averaged 5 years 2 months for males and 3 years 1 month for females; of those who were discharged, 1 year and 3 months for males and 7 months for females.

(vi.) *Tasmania.* The period of residence of those who died was 7 years 3 months for males and 9 years 2 months for females; that of those discharged, 1 year 3 months for males and 8 months for females.

(vii.) *Causes of Insanity.* The proportion of causes of insanity to the total of ascertained causes in Australia in the five years 1912-1916 shews that hereditary influences have been the chief factor, more than one-fifth of the total ascertained causes

coming under this head. Domestic troubles, adverse circumstances, etc., have also been a fruitful source. About one case in seven was due to intemperance in drink.

**PROPORTION OF ASCERTAINED CAUSES, Etc., OF INSANITY, COMMONWEALTH,  
1912 to 1916.**

Causes, Previous History, etc.	1912.	1913.	1914.	1915.	1916.
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Domestic trouble, adverse circumstances, mental anxiety ... ..	11.8	7.6	10.1	10.6	9.6
Intemperance in drink ... ..	16.3	16.3	12.9	11.6	10.3
Hereditary influence, ascertained; congenital defect, ascertained ... ..	21.7	22.6	16.6	22.9	22.4
Pregnancy, lactation, parturition and puerperal state, uterine and ovarian disorders, puberty, change of life ... ..	6.6	6.0	4.9	7.1	5.1
Previous attacks ... ..	9.5	8.7	10.8	13.0	14.9
Accident, including sunstroke ... ..	2.3	2.6	2.2	1.7	1.8
Old age ... ..	9.2	10.2	8.4	8.2	10.0
Other causes ascertained ... ..	22.6	26.0	34.1	24.9	25.9
All ascertained causes ... ..	100.0	100.0	100.0	100.0	100.0

7. **Treatment of Inebriates.**—The treatment of inebriates is referred to in the section dealing with Public Justice hereinbefore. (See page 883.)

8. **Protection of Aborigines.**—For the protection of the aboriginal Australian race there are institutions, under the supervision of Aborigines Boards, where the blacks are housed and encouraged to work, the children receiving elementary education. The work is usually carried on at mission stations, but many of the natives are nomadic in habit of life, and receive food and clothing when they call, whilst others but rarely come under the notice of the boards. The native race is extinct in Tasmania. The estimated average annual expenditure on maintenance, etc., for the last five years was—New South Wales, £25,000; Victoria, £4000; Queensland, £21,000; South Australia, £19,000; Western Australia, £25,000; Northern Territory, £3000; total for Commonwealth, £97,000. In New South Wales the average number receiving monthly aid in 1916 was 2071, of whom 899 were adults; in Victoria there were 281 under the care of the Aborigines Protection Board on the 30th June, 1916; in Queensland, at the end of 1916, there were 2999 aborigines at the mission stations; in South Australia, there were 753 inmates at mission stations, while in Western Australia the aborigines and half-castes in the native institutions numbered 373. At the mission stations in the Northern Territory about 300 were in residence, but casual assistance and medical attendance are given to large numbers of natives every year.

9. **Royal Life Saving Society.**—In each of the State Capitals, "centres" of the Royal Life Saving Society have been established. Life preservation is the object of the Society, and its immediate objects are (a) educative and (b) remedial. By stimulating the acquirement of the art of swimming in schools, colleges, clubs, etc., it is desired to bring about a widespread and thorough knowledge of natation and life-saving; while life-belts, reels, lines, and other first-aid appliances are provided on ocean beaches and at places where they are likely to be in demand. Certificates of proficiency in various grades are issued after examination. In the year 1917-18 the number of certificates issued in New South Wales was 658; in Victoria 1039; in Queensland 532; in South Australia 16; in Western Australia 531; in Tasmania 114; making a total for the Commonwealth of 2890.

**10. Royal Humane Society.**—The Royal Humane Society of Australasia has for its objects (a) to grant awards for skill, promptness, and perseverance in life saving; (b) to provide assistance in cases of danger and apparent death; (c) to restore the apparently drowned; (d) to collect and circulate the latest information regarding approved methods and apparatus for life saving. In 1917, 89 awards of medals and certificates were made. Upwards of 350 lifebuoys have been provided at various places on the coasts, rivers, lakes, and reservoirs in the various States. Swimming is encouraged amongst school children, and awards made for proficiency.

**11. Other Charitable Institutions.**—Owing to variety of name and function of other charitable institutions it has been found impracticable to give detailed results. The aid given in kind—food, clothing, tools of trade, etc.—is considerable, whilst the shelter and treatment afforded ranges from a bed for a night for casual callers in establishments ministering minor charity, to indoor treatment over long periods in those that exist for the relief of the aged and infirm. The institutions not so particularised include asylums for the deaf, dumb, and blind, maternity institutions and infant homes, homes for the destitute and aged poor, industrial colonies, night shelters, crèches, homes of hope, rescue homes, free kindergarten and ragged schools, auxiliary medical charities, free dispensaries, benevolent societies and nursing systems, ambulance and health societies, boys' brigades, humane and animals' protection societies, prisoners' aid associations, shipwreck relief societies, bush fires and mining accident relief funds, etc.

**12. State Expenditure on Charities.**—The table below gives the amount expended by Government on charities in each of the last five years, the figures for the various States being compiled, as far as possible, on the same basis:—

STATE EXPENDITURE ON CHARITIES, 1912 to 1916.

State or Territory.	1912.	1913.	1914.	1915.	1916.
	£	£	£	£	£
New South Wales ...	576,886	683,102	711,453	779,303	876,767
Victoria ...	446,332	468,588	485,018	541,668	525,682
Queensland ...	262,171	261,237	321,597	307,899	324,143
South Australia ...	118,931	117,204	129,281	167,272	162,849
Western Australia ...	184,940	201,215	222,417	228,064	247,589
Tasmania ...	45,166	62,205	70,387	78,092	79,494
Northern Territory ...	5,328	5,602	5,301	4,864	5,649
Commonwealth ...	1,639,754	1,799,153	1,945,454	2,107,162	2,222,173

**13. Total Charitable Expenditure.**—The expenditure in the Commonwealth in money on hospitals, charities, and all forms of relief publicly given, comprising the amounts furnished by Government and those raised by public subscription, etc., but excluding old-age pensions, exceeds £3,000,000 annually.

## SECTION XXV.

## GENERAL GOVERNMENT.

## § 1. Scheme of Parliamentary Government.

1. **General.**—The legislative power of the Commonwealth is vested in the Federal Parliament, which consists of the Sovereign, the Senate, and the House of Representatives. The Sovereign is represented throughout the Commonwealth by the Governor-General, who, subject to the Constitution of the Commonwealth, has such powers and functions as the Sovereign is pleased to assign to him. In each State there is a State Governor, who is the representative of the Sovereign for the State, and who exercises such powers within the State as are conferred upon him by the Letters Patent which constitute his office, and by the instructions, which inform him in detail of the manner in which his duties are to be fulfilled. The Legislature in each State is also bi-cameral, and consists of (a) a Legislative Council and (b) a Legislative Assembly, or House of Assembly, the legislative powers of these chambers being delimited by the Commonwealth and the State Constitutions. The latter chamber, which is the larger, is always elective; the qualification for the franchise varies in character. The former chamber is, in the case of New South Wales and Queensland, nominated by the Governor-in-Council, but in the other States it is elective, the constituencies being differently arranged and some property qualification for the electorate being required. In the Federal Parliament, however, the qualifications for the franchise are identical for both Houses. A brief account of the constitutional history of each of the States was given in previous issues of this book (see especially Year Book No. 4, pp. 27 to 32).

2. **Number of Members of the Legislatures.**—The following table shews the number of members in each of the legislative chambers in the Commonwealth and in each State at 1st October, 1918:—

MEMBERS OF PARLIAMENT OF AUSTRALIA, 1918.

Members in—	C'wealth.	N.S.W.	Victoria.	Q'land.	S. Aust.*	W. Aust.	Tas.	Total.
Upper House	36	71	34	49	20	30	18	258
Lower House	75	90	65	72	46	50	30	428
Total ...	111	161	99	121	66	80	48	686

\* By "Constitution Further Amendment Act 1913," the number of members in the Upper House was increased to 20, and in the Lower to 46, the previous numbers being 18 and 40 respectively.

The use of the expressions "Upper House" and "Lower House" in the above statement, though not justified constitutionally, is convenient, inasmuch as the legislative chambers are known by different names in the Commonwealth and in some of the States.

In the Commonwealth Parliament the Upper House is known as the Senate, and in the State Parliaments as the Legislative Council. The Lower House is known as follows:—In the Commonwealth Parliament as the House of Representatives, in the State Parliaments of New South Wales, Victoria, Queensland, and Western Australia as the Legislative Assembly, and in the State Parliaments of South Australia and Tasmania as the House of Assembly.

**3. The Cabinet and Executive Government.**—The sections of the Commonwealth Constitution Act dealing with the Executive Government are given on pages 26 and 27 hereinbefore. In both the Commonwealth and the State Legislatures the forms of government have been founded on their prototype, the Imperial Government, and the relations established between the Ministry and the representatives of the people are in accordance with those prevailing in Great Britain. The executive powers in the Commonwealth and in the State Governments are vested in the Governor-in-Council. The Executive Council in the Commonwealth and in the majority of the States is practically co-extensive with a group of departmental chiefs, who are usually spoken of as the Cabinet, and who change with the rise and fall of party majorities. In the Commonwealth Government, however, as well as in the States of Victoria and Tasmania, the Cabinet on leaving office remain members of the Executive Council, though they no longer attend its meetings, and it is in fact an essential feature of the Cabinet system of Government that they should not do so, except to assist the Governor in transacting purely formal business, or to advise on non-political questions.

(i.) *The Executive Council.* This body is composed of the Governor and the Ministers of State holding office for the time being. The latter are sworn both as Executive Councillors and as Ministers controlling the different administrative departments. It should be observed that all persons living who have held Ministerial office under former Governments are also technically members of the Executive Council, and are thus liable to be specially summoned for attendance at meetings of that body. The meetings are official in character; they are presided over by the Governor-General (or Governor) and are attended by the clerk, who keeps a formal record of its proceedings. At these meetings the decisions of the Cabinet are put into official form and made effective, appointments are confirmed, resignations accepted, proceedings ordered, and notices and regulations published.

The official members of the Executive Council in October, 1918, have been previously specified (see page 39). In addition, all living members of past Ministries (see following pages) are technically liable to be officially summoned to attend meetings of the Executive Council.

Particulars of previous Commonwealth Ministries are given on pages 36 to 39 hereinbefore, and the following pages.

(ii.) *The Cabinet.* The meetings of this body are private and deliberative. No one is admitted but the actual Ministry of the day, no records of the meetings transpire, and no official notice is taken of the proceedings. The members of the Cabinet, being the leaders of the party in power in Parliament, control the bent of legislation, and must retain the confidence of the people and also of the Governor-General (or Governor), to whom they act as an advising body. They also in effect wield, by virtue of their seats on the Executive Council, the whole executive force of the community. In summoning, proroguing, or dissolving Parliament, the Governor-General (or Governor) is usually guided by the advice tendered him by the Cabinet, though legally in no way bound to accept such advice. The following statement gives the names of the Ministers of State for the Commonwealth who have held office since the inauguration of the Commonwealth Government:—



## MINISTERS OF STATE FOR THE COMMONWEALTH OF AUSTRALIA FROM

1st JANUARY, 1901, to OCTOBER, 1918.

HOME AND TERRITORIES. (Previous to 14/11/16 known as External Affairs.)			TRADE AND CUSTOMS.		
Name.	From	To	Name.	From	To
Rt. Hon. E. BARTON, P.C., K.C.*	1/1/01	23/9/03	Rt. Hon. C. C. KINGSTON, P.C., K.C.	1/1/01	24/7/03
Hon. A. DEAKIN*	23/9/03	26/4/04	Hon. Sir W. J. LYNE, K.C.M.G.	7/8/03	26/4/04
Hon. W. M. HUGHES*†	26/4/04	17/8/04	Hon. A. FISHER††	26/4/04	17/8/04
Rt. Hon. G. H. REID, P.C., K.C.**	17/8/04	4/7/05	Hon. A. McLEAN	17/8/04	4/7/05
Hon. A. DEAKIN*	4/7/05	12/11/08	Hon. Sir W. J. LYNE, K.C.M.G.	4/7/05	29/7/07
Hon. E. L. BATCHELOR	12/11/08	2/6/09	Hon. A. CHAPMAN	29/7/07	12/11/08
Hon. L. E. GROOM	2/6/09	29/4/10	Hon. F. G. TUDOR	12/11/08	2/6/09
Hon. E. L. BATCHELOR	29/4/10	18/10/11	Hon. Sir R. W. BEST, K.C.M.G.	2/6/09	29/4/10
Hon. J. THOMAS	14/10/11	20/5/13	Hon. F. G. TUDOR	29/4/10	20/5/13
Hon. P. McM. GLYNN, K.C.	20/5/13	17/9/14	Hon. L. E. GROOM	20/5/13	17/9/14
Hon. J. A. ARTHUR	17/9/14	19/12/14	Hon. F. G. TUDOR	17/9/14	14/9/16
Hon. HUGH MAHON	14/12/14	14/11/16	Rt. Hon. Wm. HUGHES, P.C.	29/9/16	14/11/16
Hon. F. W. HAMFORD	14/11/16	17/2/17	Hon. W. O. ARCHIBALD	14/11/16	17/2/17
Hon. P. McM. GLYNN, K.C.	17/2/17		Hon. J. A. JENSEN	17/2/17	
ATTORNEY GENERAL.			TREASURER.		
Name.	From	To	Name.	From	To
Hon. A. DEAKIN	1/1/01	23/9/03	Rt. Hon. Sir G. TURNER, P.C., K.C.M.G.	1/1/01	26/4/04
Hon. J. G. DRAKE	23/9/03	26/4/04	Hon. J. C. WATSON*	26/4/04	17/8/04
Hon. H. B. HIGGINS, K.C.	26/4/04	17/8/04	Rt. Hon. Sir G. TURNER, P.C., K.C.M.G.	17/8/04	4/7/05
Hon. Sir J. H. SYMON, K.C.M.G., K.C.	17/8/04	4/7/05	Rt. Hon. Sir J. FORREST, P.C., G.C.M.G.***	4/7/05	29/7/07
Hon. I. A. ISAACS	4/7/05	11/10/06	Hon. Sir W. J. LYNE, K.C.M.G.	29/7/07	12/11/08
Hon. L. E. GROOM	11/10/06	12/11/08	Hon. A. FISHER*††	12/11/08	2/6/09
Hon. W. M. HUGHES†††	12/11/08	2/6/09	Rt. Hon. Sir J. FORREST, P.C., G.C.M.G.***	2/6/09	29/4/10
Hon. P. M. GLYNN	2/6/09	29/4/10	Rt. Hon. A. FISHER, P.C.*	29/4/10	20/5/13
Hon. W. M. HUGHES†††	29/4/10	20/5/13	Rt. Hon. Sir J. FORREST, P.C., G.C.M.G.***	20/5/13	17/9/14
Hon. W. H. IRVINE, K.C.‡‡‡	20/5/13	17/9/14	Rt. Hon. A. FISHER, P.C.*	17/9/14	27/10/15
Hon. W. M. HUGHES*††	17/9/14		Hon. W. G. HIGGS	27/10/15	27/10/16
			Hon. A. POYNTON	24/11/16	17/2/17
			Rt. Hon. Sir J. FORREST, P.C., G.C.M.G.***	17/2/17	27/3/18
			Hon. W. A. WATT	27/3/18	
WORKS AND RAILWAYS. (Previous to 14/11/16 known as Home Affairs.)			DEFENCE.		
Name.	From	To	Name.	From	To
Hon. Sir W. J. LYNE, K.C.M.G.	1/1/01	7/8/03	Hon. Sir J. R. DICKSON, K.C.M.G.	1/1/01	11/10/01
Rt. Hon. Sir J. FORREST, P.C., G.C.M.G.***	7/8/03	26/4/04	Rt. Hon. Sir J. FORREST, P.C., G.C.M.G.***	17/1/01	7/8/03
Hon. E. L. BATCHELOR	26/4/04	17/8/04	Hon. J. G. DRAKE	7/8/03	23/9/03
Hon. D. THOMSON	17/8/04	4/7/05	Hon. A. CHAPMAN	23/9/03	26/4/04
Hon. L. E. GROOM	4/7/05	11/10/06	Hon. A. DAWSON	26/4/04	17/8/04
Hon. T. T. EWING†	11/10/06	23/1/07	Hon. J. W. McCAY†††	17/8/04	4/7/05
Hon. J. H. KEATING	23/1/07	12/11/08	Hon. T. PLAYFORD	4/7/05	23/1/07
Hon. H. MAHON	12/11/08	2/6/09	Hon. Sir T. T. EWING, K.C.M.G.	23/1/07	12/11/08
Hon. G. W. FULLER	2/6/09	29/4/10	Hon. G. F. PEARCE	12/11/08	2/6/09
Hon. K. O'MALLEY	29/4/10	20/5/13	Hon. J. COOK‡‡	2/6/09	29/4/10
Hon. JOSEPH COOK*§§	20/5/13	17/9/14	Hon. G. F. PEARCE	29/4/10	20/5/13
Hon. W. O. ARCHIBALD	17/9/14	27/10/15	Hon. E. D. MILLEN	20/5/13	17/9/14
Hon. K. O'MALLEY	27/10/15	14/11/16	Hon. G. F. PEARCE	17/9/14	
Hon. P. J. LYNCH	14/11/16	17/2/17			
Hon. W. A. WATT	17/2/17	27/3/18			
Hon. L. E. GROOM	27/3/18				

\* Prime Minister. † Afterwards the Rt. Hon. Sir E. Barton, P.C., G.C.M.G., etc. ‡ Afterwards the Hon. Sir T. T. Ewing, K.C.M.G. § Afterwards the Hon. Sir N. E. Lewis, K.C.M.G. || Still in office. ¶ Died while holding office. \*\* Prime Minister, afterwards the Rt. Hon. Sir G. H. Reid, P.C., K.C.M.G., G.C.M.G. †† Afterwards the Rt. Hon. A. Fisher, P.C. ††† Afterwards the Rt. Hon. Sir J. Cook, P.C., G.C.M.G. ‡‡ Afterwards the Hon. Sir W. H. Irvine, K.C.M.G., K.C. §‡ Afterwards the Rt. Hon. W. M. Hughes, P.C. \*\*\* Afterwards Lord Forrest of Bunbury. ††† Afterwards the Hon. Sir J. W. McCay, K.C.M.G.

**MINISTERS OF STATE FOR THE COMMONWEALTH OF AUSTRALIA FROM  
1st JANUARY, 1901, TO OCTOBER, 1918—(Continued).**

POSTMASTER-GENERAL.			VICE-PRESIDENT OF THE EXECUTIVE COUNCIL.		
Name.	From	To	Name.	From	To
Rt. Hon. Sir JOHN FORREST, P.C., G.C.M.G.***	1/1/01	17/1/01	Hon. R. E. O'CONNOR, K.C.	1/1/01	23/9/03
Hon. J. G. DRAKE	5/2/01	7/8/03	Hon. T. PLAYFORD	23/9/03	26/4/04
Hon. Sir P. O. FYSH, K.C.M.G.	7/8/03	26/4/04	Hon. G. MCGREGOR	26/4/04	17/8/04
Hon. H. MAHON	26/4/04	17/8/04	Hon. J. G. DRAKE	17/8/04	4/7/05
Hon. S. SMITH	17/8/04	4/7/05	Hon. T. T. EWING†	4/7/05	11/10/06
Hon. A. CHAPMAN	4/7/05	29/7/07	Hon. J. H. KEATING	11/10/06	19/2/07
Hon. S. MAUGER	29/7/07	12/11/08	Hon. Sir R. W. BEST, K.C.M.G.	19/2/07	12/11/08
Hon. J. THOMAS...	12/11/08	3/6/09	Hon. G. MCGREGOR	12/11/08	2/6/09
Hon. Sir J. QUICK	2/6/09	29/4/10	Hon. E. D. MILLEN	2/6/09	29/4/10
Hon. J. THOMAS	29/4/10	14/10/11	Hon. G. MCGREGOR	29/4/10	20/5/13
Hon. C. E. FRAZER	14/10/11	20/5/13	Hon. J. H. MCCOLL	20/5/13	17/9/14
Hon. AGAR WYNNE	20/5/13	17/9/14	Hon. A. GARDINER	17/9/14	27/11/16
Hon. W. G. SPENCE	17/9/14	27/10/15	Hon. W. G. SPENCE	27/11/16	17/2/17
Hon. W. WEBSTER	27/10/15		Hon. E. D. MILLEN	17/2/17	16/11/17
			Hon. L. E. GROOM	16/11/17	27/3/18
			Hon. E. J. RUSSELL	27/3/18	

**WITHOUT PORTFOLIO.**

Name.	From	To	Name.	From	To
Hon. N. E. LEWIS†	1/1/01	23/4/01	Hon. W. H. LAIRD SMITH	14/11/16	17/2/17
Hon. Sir P. O. FYSH, K.C.M.G.	23/4/01	7/8/03	Hon. L. E. GROOM	17/2/17	16/11/17
Hon. J. H. KEATING	5/7/05	11/10/06	Hon. A. POYNTON	26/3/18	
Hon. S. MAUGER	11/10/06	29/7/07	Hon. G. H. WISV	26/3/18	
Hon. J. H. COOK	28/1/08	12/11/08	Hon. W. M. GREENE	26/3/18	
Hon. J. HUTCHISON	12/11/08	2/6/09	Hon. R. B. ORCHARD	26/3/18	
Hon. A. DEAKIN*	2/6/09	29/4/10	<b>THE NAVY.</b>		
Col. Hon. J. F. G. FOXTON, C.M.G.	2/6/09	29/4/10	Hon. J. A. JENSEN	12/7/15	17/2/17
Hon. E. FINDLEY	29/4/10	20/5/13	Right Hon. J. COOK, P.C.££	17/2/17	
Hon. C. E. FRAZER	29/4/10	14/10/11	<b>REPATRIATION.</b>		
Hon. E. A. ROBERTS	23/10/11	20/5/13	Hon. E. D. MILLEN	28/9/17	
Hon. J. S. CLEMONS	20/5/13	17/9/14			
Hon. W. H. KELLY	20/5/13	17/9/14			
Hon. H. MAHON	17/9/14	14/12/14			
Hon. J. A. JENSEN	17/9/14	12/7/15			
Hon. E. J. RUSSELL	17/9/14	27/3/18			

See notes on previous page.

(iii.) *Constitution of Ministries.* The subjoined table shews the constitution of the Ministries in the Commonwealth and the State Governments at 31st July, 1918:—

**CONSTITUTION OF MINISTRIES, 1918.**

Ministers with Seats in—	C'wealth.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	Total.
The Upper House ...	3	2	4	1	2	2	2	16
The Lower House ...	11	10	8	8	4	6	4	51
Total ...	14	12	12	9	6	8	6	67

The names of the members of the Ministries in each State in September, 1918, are shewn in the following statement:—

**MEMBERS OF STATE GOVERNMENT MINISTRIES, 1918.  
NEW SOUTH WALES.—MINISTRY.**

*Premier and Colonial Treasurer—*  
HON. W. A. HOLMAN.  
*Colonial Secretary—*  
HON. G. W. FULLER.  
*Solicitor-General and Minister for Justice—*  
HON. J. GARLAND, K.C., M.L.C.  
*Secretary for Public Works and Minister  
for Railways—*  
HON. R. T. BALL.  
*Minister for Labour and Industry—*  
HON. G. S. BEEBY.  
*Attorney-General—*  
HON. D. R. HALL.  
*Minister for Public Instruction—*  
HON. A. G. F. JAMES.

*Minister for Lands and Minister for  
Forests—*  
HON. W. G. ASHFORD.  
*Minister for Mines & Assistant Treasurer—*  
HON. J. C. L. FITZPATRICK.  
*Minister for Agriculture—*  
HON. W. C. GRAHAME.  
*Vice-President of the Executive Council  
and Minister for Public Health and  
Local Government—*  
HON. J. D. FITZGERALD, M.L.C.  
*Minister without Portfolio—*  
HON. D. STOREY.

**VICTORIA.—MINISTRY.**

*Premier, Att.-General, & Min. of Labour—*  
HON. H. S. W. LAWSON.  
*Chief Secretary and Minister of Public  
Health—*  
HON. J. BOWSER.  
*Treasurer—*  
HON. W. M. MCPHERSON.  
*Solicitor-General, Commissioner of Public  
Works, and a Vice-President of the  
Board of Land and Works—*  
HON. A. ROBINSON, M.L.C.  
*Minister of Public Instruction and Forests,  
and a Vice-President of the Board of  
Land and Works—*  
HON. W. HUTCHINSON.

*President of the Board of Land and Works,  
Commissioner of Crown Lands and  
Survey and Minister of Water Supply—*  
HON. F. G. CLARKE, M.L.C.  
*Minister of Railways and Mines and a Vice  
President of the Board of Land and  
and Works—*  
HON. S. BARNES.  
*Minister of Agriculture—*  
HON. D. S. OMAN.  
*Ministers without Office—*  
HON. W. KENDELL, M.L.C.  
HON. J. MCWHAE, M.L.C.  
HON. H. J. M. CAMPBELL.  
HON. A. R. ROBERTSON.

**QUEENSLAND.—MINISTRY.**

*Premier, Vice-Pres. of Ex. Council, Chief  
Sec., and Attorney-General—*  
HON. T. J. RYAN.  
*Home Secretary—*  
HON. J. HUXHAM.  
*Secretary for Public Lands—*  
HON. J. H. COYNE.  
*Treasurer and Secretary for Public Works—*  
HON. E. G. THEODORE.  
*Secretary for Railways—*  
HON. J. A. FIDELLY.

*Secretary for Public Instruction—*  
HON. H. F. HARDACRE.  
*Secretary for Mines—*  
HON. A. J. JONES, M.L.C.  
*Secretary for Agriculture and Stock—*  
HON. W. LENNON.  
*Minister without Portfolio—*  
HON. W. N. GILLIES.

**SOUTH AUSTRALIA.—MINISTRY.**

*Premier and Chief Secretary—*  
HON. A. H. PEAKE.

*Treasurer and Minister for Railways and  
Minister in Charge of Wheat Affairs—*  
HON. SIR R. BUTLER.

*Commissioner of Public Works and Minister  
of Mines and of Marine—*  
HON. J. G. BICE, M.L.C.

*Commissioner of Crown Lands and Minister  
for Agriculture and Repatriation—*  
HON. E. A. ANSTEY.

*Attorney-General and Minister for Industry—*  
HON. H. N. BARWELL.

*Minister of Education—*  
HON. W. H. HARVEY, M.L.C.

**WESTERN AUSTRALIA.—MINISTRY.**

*Premier and Minister for Lands and Agriculture—*HON. H. B. LEFROY, C.M.G.  
*Colonial Secretary and Minister for Education—*

HON. H. P. COLEBATCH, M.L.C.

*Minister for Mines and Railways—*  
HON. C. A. HUDSON.

*Attorney-General and Min. for Industries  
and Forests—*  
HON. R. T. ROBINSON, K.C.

*Colonial Treasurer—*  
HON. J. GARDINER.

*Minister for Works, Trading Concerns, and  
for Water Supply—*  
HON. W. J. GEORGE.

*Ministers without Portfolio—*  
HON. F. E. S. WILLMOTT.  
HON. C. F. BAXTER, M.L.C.

**TASMANIA.—MINISTRY.**

*Premier, Chief Secretary and Minister for Education—*HON. W. H. LEE.  
*Attorney-General and Minister for Railways—*

HON. W. B. PROPSTING, M.L.C.

*Treasurer and Minister for Mines—*  
HON. SIR N. E. LEWIS.

*Minister of Lands and Works and Agriculture—*  
HON. J. B. HAYES.

*Ministers without Portfolio—*  
HON. T. SHIELDS.  
HON. H. HAYS, M.L.C.

4. **The Appointment of Ministers and of Executive Councillors.\***—Although it is technically possible for the Governor to make and unmake cabinets at his pleasure, under all ordinary circumstances his apparent liberty in choosing his Executive Council is virtually restricted by the operation of constitutional machinery. When a Ministry is defeated in Parliament or at the polls, the procedure both in the Commonwealth and the State Parliaments generally, though not invariably, follows that prevailing in the Imperial Parliament. The customary procedure in connection with the resignation or acceptance of office by a Ministry is described fully in previous issues of the Year Book. (No. 6, page 942.)

5. **Enactments of the Parliament.**—In the Commonwealth, all laws are enacted in the name of the Sovereign, the Senate, and the House of Representatives. The subjects with respect to which the Commonwealth Parliament is empowered to make laws are enumerated in the Constitution Act (see pp. 23-26 hereinbefore). In the States, laws are enacted in the name of the Sovereign by and with the consent of the Legislative Council and Legislative Assembly or House of Assembly. The Governor-General or the State Governor acts as Viceroy as regards giving the Royal Assent to or vetoing Bills passed by the Legislatures, or reserving them for the special consideration of the Sovereign. In the States, the Councils and Assemblies are empowered generally, subject to the Commonwealth Constitution, to make laws in and for their respective States, in all cases whatsoever. Subject to certain limitations, they may alter, repeal, or vary their Constitution. Where a law of a State is inconsistent with a law of the Commonwealth the latter prevails, and the former is, to the extent of the inconsistency, invalid.

\* See Jenks' "Government of Victoria," pp. 269 *et seq.*

**6. Powers and Functions of the Governor-General and of the Governors.**—The Governor-General and the State Governors act under the authority of the Commissions by which they are appointed and the Letters Patent under the Great Seal of the United Kingdom, and according to instructions issued by the Colonial Office and passed under the Royal Sign Manual and Signet.

The office of Governor-General and Commander-in-Chief of the Commonwealth was constituted by Letters Patent issued on the 29th October, 1900, in pursuance of the provisions of the Commonwealth Constitution Act (see page 17 hereinbefore). The powers and duties of the Governor-General were further defined by Royal instructions passed on the same date. The principal and most important of his functions, legislative as well as executive, are expressly conferred upon him by the terms of the Constitution itself. He is the custodian of the Great Seal of the Commonwealth, and has the appointment of political officers to administer Departments of State of the Commonwealth.

His legislative functions are exercised with respect to proposed laws as finally passed by the Federal Houses of Parliament. Such Bills are presented to the Governor-General for his assent in the King's name, on receiving of which they become law throughout the Commonwealth. The Governor-General may, however, withhold his assent, or may reserve any Bill for the King's pleasure. He may return to the House in which it originated any proposed law with suggested amendments. The King may disallow any law within one year from the date on which it was assented to by the Governor-General.

The Governor-General's executive functions are, under ordinary circumstances, exercised on the advice of his responsible Ministers. Various specific powers are vested in him by the Constitution; he may summon or prorogue Parliament and may dissolve the House of Representatives. He is the Commander-in-Chief of the military and naval forces of the Commonwealth, and is invested by the Crown with the prerogative of mercy in cases of offences committed against the laws of the Commonwealth.

The Governor-General is also invested with authority in certain matters of Imperial interest, such as the control of the naval and military forces of the Commonwealth; the observance of the relations of foreign States to Great Britain, so far as they may be affected by the indirect relations of such States to the Commonwealth; and the treatment of neutral and belligerent ships in Commonwealth waters in time of war.

The Governor-General may not leave the Commonwealth without having first obtained leave from the Imperial Government, to whom alone he is responsible for his official acts. The powers and functions of the State Governors are, within their respective States, very similar to those exercised by the Governor-General for the Commonwealth, and are defined by the terms of their Commissions and by the Royal instructions accompanying the same. A State Governor is the official head of the State Legislature, and assents in the name of the Crown to all Bills passed by the Parliament, except those reserved for the Royal Assent. The latter include certain classes of Bills, which are regulated by the Constitution Acts and by the instructions issued by the Imperial Government. The Governors are, under ordinary circumstances, guided by their Executive Councils, the chief matters in which the exercise of discretion is required being the granting or withholding of a dissolution of Parliament when requested by a Premier; the appointment of a new Ministry; or the assenting to, vetoing, or receiving of Bills passed by the legislative chambers. The Governors are authorised, under certain restrictions, to administer the prerogative of mercy by the reprieve or pardon of criminal offenders within their jurisdiction, and to remit fines and penalties due to the Crown. All moneys to be expended for the public service are issued from the Treasury under the Governor's warrant.

In a recent work in which the above matters are exhaustively discussed,\* it is indicated that there are important functions in the hands of a Governor, and that his influence may extend beyond what is anticipated by those who are unfamiliar with the activities of actual government. This is, however, essentially a matter of individual character. A Governor is entitled to the fullest confidence of his Ministers, to be informed at once of any important decisions taken by his Cabinet, and to discuss them with the utmost freedom. He can point out objections, give advice, deprecate measures, and urge

\* "Responsible Government in the Dominions," A. B. Keith, Oxford, Clarendon Press, 1912. Vol. I.

alterations, subject, however, to his remaining always behind the scenes. It should be remembered, moreover, that the State Executive Councils owe their existence to the Royal Letters Patent constituting the office of Governor and that, in law, the Governor is never bound to accept the advice of his Ministers. He cannot indeed do many things without their advice, for it is provided by law (either in the Constitution or Interpretation Acts, or by authoritative usage) that a Governor-in-Council must act on the advice of the Council. He cannot therefore perform any act in Council without a majority, though he can always refuse to act, and thus force his Ministers either to give way on the point at issue or to resign their posts. Even in the case of a ministerial act he can forbid a Minister to take any action on pain of dismissal. Nominally a Governor will, of course, be justified in accepting the advice of his Ministers as being a correct statement of the facts and law, but he is not bound to be so satisfied, and in matters of law he must exercise his own judgment if he be in doubt. A Governor is not, however, entitled to refuse to act on the advice of his Ministers because he personally does not approve of their action or policy; his duty is not to his own conscience, but to the people of the State which he governs, and he should execute that duty independently of every other consideration.

Although the above furnishes a brief *résumé* of the powers of a Governor from a legal point of view, in practice the exercise of his powers is generally limited by his ability to persuade his Ministers as to the desirability of any particular course of action. Disagreement with Ministers is only justifiable in extreme cases, and even then it involves the responsibility of finding other Ministers, who must either shew that they have as much support as any other party, or be prepared to administer during a dissolution, pending an appeal to the people. It may be remarked that a Governor who cannot work with Ministers possessing the support of the people must be recalled, unless he has acted on Imperial grounds, and the dispute is not one between him and Ministers, but between the Imperial and State Governments.

It may also be pointed out that a Governor, besides acting according to law, has, within the range of what is lawful, to act according to the instructions of the Secretary of State. He is called upon to do so by the instruments which create his office and appoint him Governor, and he obeys the Secretary of State as the mouthpiece of the Crown. Historically, there have been many cases in which these instructions have placed Governors in opposition to their Ministers.

The present Governor-General is the Right Honourable Sir Ronald Craufurd Munro Ferguson, P.C., G.C.M.G. He assumed office 18th May, 1914. Particulars of previous Governors-General are given on p. 36 hereinbefore.

The following is a list of the Governors of the various States of the Commonwealth:—

<i>New South Wales</i>	... SIR WALTER DAVIDSON, K.C.M.G.
<i>Victoria</i>	... The Hon. SIR ARTHUR LYULPH STANLEY, K.C.M.G.
<i>Queensland</i>	... Major SIR HAMILTON JOHN GOOLD-ADAMS, G.C.M.G., C.B.
<i>South Australia</i>	... Lieutenant - Colonel SIR HENRY LIONEL GALWAY, K.C.M.G., D.S.O.
<i>Western Australia</i>	... The Rt. Hon. SIR WILLIAM GREY ELLISON-MACARTNEY, P.C., K.C.M.G.
<i>Tasmania</i>	... SIR FRANCIS NEWDIGATE-NEWDEGATE, K.C.M.G.

**7. Cost of Parliamentary Government.**—The following statement shews the cost of parliamentary government in the Commonwealth and in each State, as well as the cost per head of population, for the year ended the 30th June, 1917. In order to avoid any incorrect conclusions as to the cost of the Governor-General's or Governor's establishment, it may be pointed out that a very large part of the expenditure (with the exception of item "Governor's salary") under the head of Governor-General or Governor represents official services entirely outside the Governor's personal interests, and carried out at the request of the Government.

## COST OF PARLIAMENTARY GOVERNMENT, 1916-17.

Particulars.	C'with.	N.S.W.	Vict.	Q'ld.	S.A.	W.A.	Tas.	Total.
	£	£	£	£	£	£	£	£
<b>1. Governor-General or Governor—</b>								
Governor's salary ...	10,000	5,000	5,000	3,000	4,000	3,990	2,639	33,629
Official secretary's salary ...	650	400		300		350		
Governor's establishments ...	9,375	725	5,134	3,847		1,095	250	35,733
Repairs and maintenance of Governor's residences ...	5,079	1,399			1,188	760	363	
Miscellaneous ...	175	2,570	(e) 276	300	123	770	604	
<b>Total ...</b>	<b>25,279</b>	<b>10,094</b>	<b>10,410</b>	<b>7,447</b>	<b>5,311</b>	<b>6,965</b>	<b>3,856</b>	<b>69,362</b>
<b>2. Executive Council—</b>								
Salaries of officers ...	156	145	612	...	...	350	...	1,263
Other expenses ...	14	...	24	101	...	57	...	196
<b>Total ...</b>	<b>170</b>	<b>145</b>	<b>636</b>	<b>101</b>	<b>...</b>	<b>407</b>	<b>...</b>	<b>1,459</b>
<b>3. Ministry—</b>								
Salaries of Ministers ...	13,650	11,040	8,400	8,276	5,000	6,200	3,200	55,766
Other expenses ...	4	988	(d) ...	...	...	2,820	490	4,302
<b>Total ...</b>	<b>13,654</b>	<b>12,028</b>	<b>8,400</b>	<b>8,276</b>	<b>5,000</b>	<b>9,020</b>	<b>3,690</b>	<b>60,068</b>
<b>4. Parliament—</b>								
<b>A. The Upper House:</b>								
Allowances to members ...	20,866	...	(e) 5,000	1,422	3,600	9,490	3,000	38,378
Railway passes ...	a 10,339	6,929	(f) ...	(f) ...	800	(f) ...	750	(g) 23,818
Other expenses of members ...	(a) 2,375	...	...	...	181	...	...	2,456
<b>B. The Lower House:</b>								
Allowances to members ...	39,072	37,681	16,983	20,849	7,885	15,626	4,826	142,922
Railway passes ...	(b) ...	11,262	(e) ...	(f) ...	1,840	(f) ...	1,250	(g) 14,352
Other expenses of members ...	(b) ...	1,753	...	1,530	540	278	8	4,109
<b>C. Miscellaneous:</b>								
Salaries of officers and staff ...	15,063	21,339	14,344	3,716	5,285	3,692	2,936	66,375
Printing ...	14,211	17,158	2,068	4,738	5,508	699	2,510	46,892
Hansard ...	13,565	6,969	7,627	6,950	4,918	4,444	...	44,473
Library ...	6,060	544	929	1,157	757	460	...	
Refreshment rooms ...	1,244	(c) ...	1,780	1,200	1,402	1,085	...	
Water, power, light and heat ...	801	462	554	370	677	...	827	39,473
Postage and stationery ...	1,578	596	1,003	302	368	...	...	
Miscellaneous ...	5,845	6,322	199	879	457	1,615	...	
<b>Total ...</b>	<b>130,919</b>	<b>111,015</b>	<b>50,487</b>	<b>43,113</b>	<b>34,218</b>	<b>37,389</b>	<b>16,107</b>	<b>423,248</b>
<b>5. Electoral Office—</b>								
Salaries of officers and staff ...	41,640	1,832	1,044	1,964	3,804	2,165	2,614	168,121
Other expenses ...	71,550	5,179	17,492	8,219	3,818	6,800	...	
<b>Total ...</b>	<b>113,190</b>	<b>7,011</b>	<b>18,536</b>	<b>10,183</b>	<b>7,622</b>	<b>8,965</b>	<b>2,614</b>	<b>168,121</b>
<b>6. Cost of Elections ...</b>	<b>h 83,352</b>	<b>44,868</b>	<b>671</b>	<b>13,075</b>	<b>935</b>	<b>35</b>	<b>(g)</b>	<b>142,936</b>
<b>7. Royal Commissions and Select Committees ...</b>	<b>9,384</b>	<b>6,171</b>	<b>1,703</b>	<b>1,995</b>	<b>2,077</b>	<b>7,670</b>	<b>2,074</b>	<b>31,074</b>
<b>GRAND TOTAL ...</b>	<b>375,948</b>	<b>191,332</b>	<b>90,843</b>	<b>184,190</b>	<b>55,163</b>	<b>170,451</b>	<b>28,341</b>	<b>596,268</b>
<b>Cost per head of population ...</b>	<b>1s. 6.4d.</b>	<b>2s. 0.5d.</b>	<b>1s. 3.5d.</b>	<b>2s. 5.7d.</b>	<b>2s. 6.8d.</b>	<b>4s. 6.8d.</b>	<b>2s. 10.5d.</b>	<b>3s. 7.9d.</b>

\* See preceding paragraph. (a) Including Lower House. (b) Included in Upper House. (c) Included in Miscellaneous. (d) See note (e). Ministers are allowed £1 per day when travelling. (e) £5000 is paid to the Railway Department to cover issue of passes to State Governor and Staff, members of Parliament of Victoria and other States, and Executive Councillors. (f) Not available. Each member of both Houses has a pass for the whole of the State Railways. (g) Included in Electoral Office. (h) Including Referenda, £77. (i) Exclusive of travelling expenses of members, free passes, special trains, etc.

## § 2. Parliaments and Elections.

**1. Qualifications for Membership and for Franchise.**—The summary on pages 928-9 gives particulars as to the legislative chambers in the Commonwealth and State Parliaments, and shews concisely the qualifications necessary for membership and for the franchise in each House. Persons who are otherwise eligible, either as members or voters, are generally disqualified on the usual grounds of being of unsound mind or attainted of treason, being convicted of certain offences, and, as regards membership, on the grounds of holding a place of profit under the Crown, being pecuniarily interested in Government contracts, or being an undischarged bankrupt.

**2. The Federal Parliament.**—The Senate consists of thirty-six members, six being returned by each of the original federating States. Members of this chamber are elected for a term of six years, but by a provision in the Constitution a certain number retire at the end of every third year, although they are eligible for re-election. In accordance with the Constitution the total number of members of the House of Representatives must be as nearly as possible double that of the Senate. In the House of Representatives the States are represented on a population basis, and the numbers stand at present as follows:—New South Wales, 27; Victoria, 21; Queensland, 10; South Australia, 7; Western Australia, 5; Tasmania, 5—total, 75. The Constitution provides for a minimum of five members in each original State. Members of the House of Representatives are elected for the duration of the Parliament, which is limited to three years. In elections for Senators, each State is counted as a single electorate, but an elaborate scheme of subdivision had to be undertaken in order to provide workable electorates in each State for members of the House of Representatives. Members of both Houses are paid at the rate of £600 per annum. Further information regarding the Senate and the House of Representatives is given on pages 17 to 23 hereinbefore.

*Particulars of Elections.* There have been six complete Parliaments since the inauguration of Federation. The dates of the opening and dissolution of these Parliaments are given on page 35. The fifth Parliament, which was opened on the 9th July, 1913, was dissolved on the 27th June, 1914, in somewhat unusual circumstances. Under Section 27 of the Constitution, it is provided that, should the Senate fail to pass, or pass with amendments, any proposed law previously passed by the House of Representatives, and should the latter House, after a specified interval, again pass the proposed law, with or without the amendments of the Senate, and the Senate for a second time reject it or pass it with amendments to which the lower House will not agree, then the Governor-General may dissolve the two Houses simultaneously. For the first time in the history of the Commonwealth this deadlock between the Senate and the House of Representatives occurred in the second session of the Fifth Parliament, and in accordance with the section of the Constitution referred to above, both Houses were dissolved by the Governor-General. The first session of the seventh Parliament opened on the 11th July, 1917. Particulars regarding the number of electors enrolled and the number of electors to whom ballot-papers were issued at the last six elections may be found in the tables given hereunder:—



## 921

State.	Electors Enrolled.			Electors to whom Ballot Papers were Issued.			Percentage of Voters to Electors Enrolled			
	Males.	Fem.	Total.	Males.	Fem.	Total.	Males.	Fem.	Total.	
THE SENATE.										
New South Wales	1903	350,985	325,764	557,049	189,877	134,487	324,364	52.70	41.16	47.21
	1906	392,077	345,622	737,599	239,054	151,682	381,336	58.57	43.90	51.70
	1910	444,269	390,393	834,662	301,167	211,635	512,802	67.79	54.21	61.44
	1913	551,028	482,159	1,033,187	405,152	312,703	717,855	73.70	64.85	69.28
	1914	576,390	506,620	1,083,129	407,464	294,939	702,403	75.89	64.85	69.28
	1917	556,315	528,48	1,084,831	430,514	343,43	773,657	76.02	64.93	70.66
	1903	302,069	310,403	612,472	171,839	141,648	313,487	56.89	45.63	51.78
Victoria ...	1906	335,886	336,168	672,054	209,252	171,933	381,185	62.30	51.14	56.12
	1910	346,050	357,649	703,699	245,666	222,869	468,535	70.99	63.32	66.58
	1913	407,852	422,539	830,391	338,856	300,005	638,861	80.14	71.00	75.49
	1914	401,055	413,685	814,740	335,057	309,841	644,898	83.54	74.90	79.15
	1917	391,794	435,913	819,707	345,804	342,131	687,935	87.81	80.33	83.92
	1903	127,914	99,166	227,080	79,938	44,569	124,507	62.49	44.94	54.83
	1906	150,037	121,072	271,109	78,567	44,972	124,539	53.03	37.14	45.94
Queensland	1910	158,436	120,595	279,031	104,570	66,064	170,634	66.00	54.78	61.15
	1913	206,727	156,355	363,082	163,386	117,145	280,525	79.03	74.92	77.26
	1914	207,587	160,620	368,207	163,709	112,695	276,404	78.86	70.16	75.07
	1917	204,280	174,06	378,296	183,486	153,265	336,751	89.82	88.08	89.02
	1903	85,947	81,828	167,775	35,736	19,049	54,785	41.58	23.28	32.65
	1906	97,454	95,664	193,118	43,318	27,199	70,517	44.45	28.43	36.51
	1910	105,301	102,354	207,655	63,384	47,119	110,503	60.19	46.03	53.22
South Australia ...	1913	124,222	119,804	244,026	103,739	91,724	195,463	63.51	76.56	80.10
	1914	131,758	125,595	257,353	110,049	96,195	206,244	83.52	76.59	80.14
	1917	132,260	133,519	265,779	103,707	87,471	191,178	78.41	65.51	71.93
	1903	74,754	62,188	136,942	26,878	6,270	33,148	35.96	14.86	28.35
	1906	91,427	54,046	145,473	37,180	15,532	52,712	40.67	28.74	36.23
	1910	80,896	53,983	134,979	53,704	30,189	83,893	66.30	55.92	62.15
	1913	106,264	73,520	179,784	80,011	52,138	132,149	75.29	70.92	73.50
Western Australia	1914	107,005	75,102	182,107	79,150	50,984	130,134	73.97	67.89	71.46
	1917	93,049	74,981	168,030	76,518	54,554	130,672	82.23	72.22	77.77
	1903	43,51								

State	Year	1903	1906	1910	1913	1914	1917	1903	1906	1910	1913	1914	1917	1903	1906	1910	1913	1914	1917	1903	1906	1910	1913	1914	1917	1903	1906	1910	1913	1914	1917	
New South Wales	...	303,254	363,723	431,702	554,028	482,159	491,086	274,763	314,777	379,927	482,159	447,437	578,017	164,133	118,381	282,514	54.12	43.08	48.88	1903	303,254	363,723	431,702	554,028	482,159	491,086	274,763	314,777	379,927	482,159	447,437	578,017
	...	303,254	363,723	431,702	554,028	482,159	491,086	274,763	314,777	379,927	482,159	447,437	578,017	164,133	118,381	282,514	54.12	43.08	48.88	1906	363,723	431,702	554,028	482,159	491,086	274,763	314,777	379,927	482,159	447,437	578,017	
	...	303,254	363,723	431,702	554,028	482,159	491,086	274,763	314,777	379,927	482,159	447,437	578,017	164,133	118,381	282,514	54.12	43.08	48.88	1910	431,702	554,028	482,159	491,086	274,763	314,777	379,927	482,159	447,437	578,017		
	...	303,254	363,723	431,702	554,028	482,159	491,086	274,763	314,777	379,927	482,159	447,437	578,017	164,133	118,381	282,514	54.12	43.08	48.88	1913	554,028	482,159	491,086	274,763	314,777	379,927	482,159	447,437	578,017			
	...	303,254	363,723	431,702	554,028	482,159	491,086	274,763	314,777	379,927	482,159	447,437	578,017	164,133	118,381	282,514	54.12	43.08	48.88	1914	482,159	491,086	274,763	314,777	379,927	482,159	447,437	578,017				
	...	303,254	363,723	431,702	554,028	482,159	491,086	274,763	314,777	379,927	482,159	447,437	578,017	164,133	118,381	282,514	54.12	43.08	48.88	1917	491,086	274,763	314,777	379,927	482,159	447,437	578,017					
	...	303,254	363,723	431,702	554,028	482,159	491,086	274,763	314,777	379,927	482,159	447,437	578,017	164,133	118,381	282,514	54.12	43.08	48.88	1917	491,086	274,763	314,777	379,927	482,159	447,437	578,017					
Victoria	...	303,254	363,723	431,702	554,028	482,159	491,086	274,763	314,777	379,927	482,159	447,437	578,017	164,133	118,381	282,514	54.12	43.08	48.88	1903	303,254	363,723	431,702	554,028	482,159	491,086	274,763	314,777	379,927	482,159	447,437	578,017
	...	303,254	363,723	431,702	554,028	482,159	491,086	274,763	314,777	379,927	482,159	447,437	578,017	164,133	118,381	282,514	54.12	43.08	48.88	1906	363,723	431,702	554,028	482,159	491,086	274,763	314,777	379,927	482,159	447,437	578,017	
	...	303,254	363,723	431,702	554,028	482,159	491,086	274,763	314,777	379,927	482,159	447,437	578,017	164,133	118,381	282,514	54.12	43.08	48.88	1910	431,702											

\* For the House of Representatives the number of electors enrolled in contested divisions only is given.

In the Senate the figures for the year 1906 shew that ballot-papers were issued to 50.21 per cent. of the electors, and are a slight improvement on those for the year 1903, when only about 47 per cent. of the electors visited the polls. There was, however, a substantial increase in the number of electors who voted at the 1910 elections, 62.16 per cent. of the persons on the rolls exercising the franchise. The elections of 1913 shewed a gratifying increase over those of 1910, no less than 73.66 per cent. of the persons on the rolls exercising their right to vote, while in 1914, the percentage was almost as high, viz., 72.64 per cent. It will be seen from the foregoing table that the electors of the Commonwealth are setting a higher value on the privilege of the franchise. The percentage of female voters in 1914, while still considerably below that of the males, shews a marked increase on that of female voters in the earlier years of Federation. At the elections in 1917, the proportion of voters of both sexes was the highest yet recorded.

**3. Commonwealth Referenda, 26th April, 1911.**—Two proposed laws for the alteration of the Constitution were submitted to the people for acceptance or rejection on the 26th April, 1911. They were (A) The Constitution Alteration (Legislative Powers) 1910, and (B) the Constitution Alteration (Monopolies) 1910. If, in a majority of the States, a majority of the electors voting approve the proposed laws, and if a majority of all the electors voting also approve them, they are presented to the Governor-General for the King's assent. Particulars of the alterations proposed have already been given (see page 23).

Results of the Referenda of 1911 are given in the following table, which shews the number of electors enrolled, electors to whom ballot papers were issued, and the number of votes in favour of, and against, each of the proposed laws, and, as will be seen, neither of the proposed laws was approved by the people.

### COMMONWEALTH REFERENDA (LEGISLATIVE POWERS AND MONOPOLIES),

TAKEN ON 26th APRIL, 1911.

State.	Electors Enrolled.			Electors to whom Ballot Papers were Issued.			Legislative Powers.		Monopolies.	
							Total Number of Votes given in favour of the Prop's'd Law.	Total Number of Votes given not in favour of the Prop's'd Law.	Total Number of Votes given in favour of the Prop's'd Law.	Total Number of Votes given not in favour of the Prop's'd Law.
N.S.W. ...	461,196	406,998	868,194	233,668	150,520	384,188	135,968	240,605	138,237	238,177
Victoria ...	355,381	367,996	723,377	236,194	212,373	448,566	170,288	270,390	171,453	268,743
Q'land ...	167,725	125,278	293,003	101,245	60,890	162,135	69,552	89,420	70,259	88,479
S.Aust. ...	110,217	105,810	216,027	72,761	61,041	133,802	50,358	81,904	50,835	81,479
W.Aust. ...	83,850	54,847	138,697	42,568	18,884	61,452	33,043	27,185	33,592	26,561
Tas. ...	54,008	48,318	102,326	33,103	24,950	58,053	24,147	33,200	24,292	32,960
Totals for C'wealth	1,232,377	1,109,247	2,341,624	719,569	528,657	1,248,226	483,356	742,704	488,668	736,392

**4. Commonwealth Referenda, 31st May, 1913.**—At the general elections that took place on 31st May, 1913, the question of altering the Constitution so as to extend the powers of the Commonwealth was again submitted to the people. The particulars of the

proposed laws have been given on page 23 hereinbefore. The results of the Referenda of 1913 are given below, and, as will be seen, none of the proposed laws was approved by the electors.

**COMMONWEALTH REFERENDA (LEGISLATIVE POWERS) TAKEN ON 31st MAY, 1913.**

State.	Electors Enrolled.			Electors to whom Ballot Papers were Issued.			Percentage of Voters to Electors Enrolled.		
	Males.	Fe-males.	Total.	Males.	Fe-males.	Total.	Males.	Fe-males.	Total.
New South Wales ...	554,028	482,159	1,036,187	405,152	312,703	717,855	73.13	64.85	69.28
Victoria ...	407,852	422,539	830,391	326,856	300,006	626,861	80.14	71.00	75.49
Queensland ...	206,727	156,355	363,082	163,380	117,145	280,525	79.03	74.92	77.26
South Australia ...	124,222	119,804	244,026	103,739	91,724	195,463	83.51	76.56	80.10
Western Australia...	106,264	73,520	179,784	80,011	52,138	132,149	75.29	70.92	73.50
Tasmania ...	54,856	51,890	106,746	43,539	36,859	80,398	79.37	71.03	75.32
Totals for C'wealth	1,453,949	1,306,267	2,760,216	1,122,677	910,574	2,033,251	77.22	69.71	73.66

The following table shews the number of votes cast for and against each of the proposed laws in each of the States:—

**COMMONWEALTH REFERENDA, 31st MAY, 1913.—RESULTS OF THE VOTING ON EACH PROPOSED LAW.**

State.	Trade and Commerce.		Corporations.		Industrial Matters.		Railway Disputes.		Trusts.		Nationalisation of Monopolies.	
	Votes in Favour of Proposed Law.	Votes Not in Favour of Proposed Law.	Votes in Favour of Proposed Law.	Votes Not in Favour of Proposed Law.	Votes in Favour of Proposed Law.	Votes Not in Favour of Proposed Law.	Votes in Favour of Proposed Law.	Votes Not in Favour of Proposed Law.	Votes in Favour of Proposed Law.	Votes Not in Favour of Proposed Law.	Votes in Favour of Proposed Law.	Votes Not in Favour of Proposed Law.
N.S.W. ...	317,848	359,418	317,668	361,255	318,622	361,644	316,928	361,743	319,150	358,155	301,192	341,724
Victoria...	297,290	307,975	298,479	308,915	297,892	309,804	296,255	310,921	301,729	305,268	287,379	298,326
Q'land ...	146,187	122,813	146,936	123,632	147,171	123,554	146,521	123,859	147,871	122,088	139,019	117,609
S. Aust. ...	96,085	91,144	96,309	91,273	96,626	91,361	96,072	91,262	96,400	90,185	91,411	86,915
W. Aust.	66,349	59,181	66,595	59,445	66,451	59,612	65,967	59,965	67,342	59,312	64,988	57,184
Tasmania	34,660	42,084	34,724	42,304	34,839	42,236	34,625	42,296	34,839	41,935	33,176	40,189
Totals ..	958,419	982,615	960,711	986,824	961,601	987,611	956,358	990,046	967,331	975,943	917,165	941,947

5. Commonwealth Referendum, 28th October, 1916.—A special referendum was held on the 28th October, 1916, when the following question with regard to military service was submitted to the people:—"Are you in favour of the Government having, in this grave emergency, the same compulsory powers over citizens in regard to requiring their military service, for the term of this War, outside the Commonwealth, as it now has in regard to military service within the Commonwealth?" In New South Wales, Queensland and South Australia the majority of voters were not in favour of the prescribed question; and in Victoria, Western Australia and Tasmania the majority of votes were cast in its favour, the net result being a majority of 72,476 votes not in favour.

**COMMONWEALTH REFERENDUM (MILITARY SERVICE), TAKEN ON  
28th OCTOBER, 1916.**

State.	Electors Enrolled.			Electors to whom Ballot Papers were issued.			Percentage of Voters to Electors Enrolled.		
	Males.	Fe- males.	Total.	Males.	Fe- males.	Total.	Males.	Fe- males.	Total.
New South Wales ...	556,187	499,799	1,055,986	475,669	382,730	858,399	85.52	76.58	81.29
Victoria ...	398,975	425,997	824,972	354,067	342,617	696,684	88.74	80.43	84.45
Queensland ...	199,602	166,440	366,042	173,448	136,473	309,921	86.90	81.99	84.67
South Australia ...	131,636	131,145	262,781	113,461	97,791	211,252	86.19	74.57	80.39
Western Australia...	94,456	73,146	167,602	82,067	58,581	140,648	86.88	80.09	83.92
Tasmania ...	54,758	53,117	107,875	47,020	41,311	88,231	85.87	77.59	81.79
Federal Territories	3,296	1,276	4,572	2,576	892	3,468	78.16	69.91	75.85
<b>Total ...</b>	<b>1,438,910</b>	<b>1,350,920</b>	<b>2,789,830</b>	<b>1,248,308</b>	<b>1,060,295</b>	<b>2,308,603</b>	<b>86.75</b>	<b>78.49</b>	<b>82.75</b>

The following table shews the number of votes cast in each State in favour and not in favour of the prescribed question:—

**COMMONWEALTH REFERENDUM, 28th OCTOBER, 1916.—RESULTS OF VOTING  
ON THE PRESCRIBED QUESTION.**

State.	Votes given in Favour of the Prescribed Question.	Votes given Not in Favour of the Prescribed Question.	Percentage of Votes recorded in Favour of the Prescribed Question.	
			To Formal Votes.	To Electors Enrolled.
New South Wales ...	356,805	474,544	42.92	33.79
Victoria ...	353,930	328,216	51.88	42.90
Queensland ...	144,200	158,051	47.71	39.39
South Australia ...	87,924	119,236	42.44	33.46
Western Australia	94,069	40,884	69.71	56.13
Tasmania ...	48,493	37,833	56.17	44.95
Federal Territories	2,136	1,269	62.73	46.72
<b>Total ...</b>	<b>1,087,557</b>	<b>1,160,033</b>	<b>48.39</b>	<b>38.98</b>

6. Commonwealth Referendum, 20th December, 1917.—A further referendum was held on 20th December, 1917, the question being, "Are you in favour of the proposal of the Commonwealth Government for reinforcing the Australian Imperial Force overseas?" The proposal was that, while voluntary enlistment was to continue, compulsory reinforcements should be called up by ballot to make the total reinforcements up to 7000 per month. In New South Wales, Victoria, Queensland and South Australia, the majority of voters were not in favour of the prescribed question; and in Western Australia, Tasmania and the Federal Territories, the majority of votes were cast in its favour, the net result being a majority of 166,588 votes not in favour.

COMMONWEALTH REFERENDUM (MILITARY SERVICE), TAKEN ON

20th DECEMBER, 1917.

State.	Electors Enrolled.			Electors to whom Ballot Papers were issued.			Percentage of Voters to Electors Enrolled.		
	Males.	Fe-males.	Total.	Males.	Fe-males.	Total	Males	Fe-males	Total.
New South Wales	540,713	515,170	1,055,883	473,693	380,201	853,894	87.61	73.80	80.87
Victoria ...	383,511	423,820	807,331	348,211	330,595	678,806	90.80	78.00	84.08
Queensland ...	202,656	175,722	378,378	175,959	134,205	310,164	86.83	76.37	81.97
South Australia ...	129,249	132,412	261,661	107,116	90,854	197,970	82.88	68.61	75.66
Western Australia ...	88,126	74,221	162,347	81,365	54,228	135,593	92.33	73.06	83.52
Tasmania	53,030	53,773	106,803	43,981	34,811	78,792	82.94	64.74	73.77
Federal Territories	2,855	1,182	4,037	2,254	748	3,002	78.95	63.28	74.36
Total ...	1,400,140	1,376,300	2,776,440	1,232,579	1,025,642	2,258,221	88.03	74.52	81.34

The votes cast in each State were as follows :—

COMMONWEALTH REFERENDUM, 20th DECEMBER, 1917.—RESULTS OF  
VOTING ON THE PRESCRIBED QUESTION.

State.	Votes given in Favour of the Prescribed Question.	Votes given Not in Favour of the Prescribed Question.	Percentage of Votes recorded in Favour of the Prescribed Question.	
			To Formal Votes.	To Electors Enrolled.
New South Wales	341,256	487,774	41.16	32.32
Victoria ...	329,772	332,490	49.79	40.85
Queensland ...	132,771	168,875	44.02	35.09
South Australia	86,663	106,364	44.90	33.12
Western Australia	84,116	46,522	64.39	51.81
Tasmania	38,881	38,502	50.24	36.40
Federal Territories	1,700	1,220	58.22	42.11
Total ...	1,015,159	1,181,747	46.21	36.56

7. The Parliament of New South Wales.—The Legislative Council in this State is a nominee chamber, the Legislative Assembly being an elective body. Theoretically the Legislative Council may contain an unlimited number of members, but in practice the number is restricted to about sixty, the members at the latest available date being seventy-one. The tenure of the seat is for life; four-fifths of the members must be persons not holding any paid office under the Crown, but this is held not to include officers of His Majesty's sea or land forces on full or half-pay, or retired officers on pensions. The Legislative Assembly consists of ninety members, who hold their seats during the existence of the Parliament to which they are elected. The duration of any single Parliament is limited to three years.

*Particulars of Elections.* Since the introduction of responsible government in New South Wales there have been twenty-three complete Parliaments, the first of which opened on the 22nd May, 1856, and was dissolved on the 19th December, 1857, while the twenty-third opened on the 23rd December, 1913, and closed on the 21st February, 1917. The average duration of the Parliaments was two years and five months. The first session of the twenty-fourth Parliament was opened on the 17th April, 1917. Particulars of voting at the last nine elections are given below:—

#### LEGISLATIVE ASSEMBLY ELECTIONS, NEW SOUTH WALES, 1894 to 1917.

Date of Opening of Parliament.	Electors upon the Roll.	Members Returned.	Members Unopposed.	Contested Electorates.			
				Electors upon the Roll.	Votes Recorded.	Percentage of Votes Recorded	Percentage of Informal Votes.
7th August, 1894	298,817	125	1	254,105	204,246	80.38	1.62
13th " 1895	267,458	125	8	238,233	153,034	64.24	0.88
16th " 1898	324,339	125	3	294,481	178,717	60.69	0.92
23rd July, 1901	346,184	125	13	270,861	195,359	72.13	0.79
23rd August, 1904	Males 363,062	90	2	304,396	226,057	74.26	0.59
	Females 326,428			262,433	174,538	66.51	
2nd October, 1907	Males 392,845	90	5	370,715	267,301	72.10	2.87
	Females 353,055			336,680	204,650	60.78	
15th Nov., 1910...	Males 458,626	90	3	444,242	322,199	72.53	1.78
	Females 409,069			400,139	262,154	65.52	
23rd Dec., 1913 ...	Males 553,633	90	3	534,379	385,838	72.20	2.10
	Females 484,366			468,437	302,389	64.55	
17th April, 1917	Males 574,308	90	8	525,681	328,030	62.40	0.94
	Females 535,522			487,585	295,354	60.57	

The franchise was extended to women (*Women's Franchise Act*) in 1902, and was exercised for the first time at a State election in 1904.

**8. The Parliament of Victoria.**—Both of the Victorian legislative chambers are elective bodies, but there is a considerable difference in the number of members of each House, as well as in the qualifications necessary for members and electors. The number of members in the Upper House in March, 1918, was 34, and in the Lower House, 65. In the Legislative Council the tenure of the seat is for six years, but one member for each province retires every third year, except in the case of a dissolution, when one half of the newly elected members hold their seats for three years only. Members of the Legislative Assembly are elected for the duration of Parliament, which is limited to three years. The franchise was extended to women by the *Adult Suffrage Act 1908*. An elector for the Legislative Assembly may only vote once, plurality of voting having been abolished in 1899; an elector, however, qualified in more than one district, may select that for which he desires to record his vote. A preferential system of voting (see Year Book No. 6, page 1182) was for the first time adopted in Victoria at the election held in November, 1911.

*Particulars of Elections.* Since the introduction of responsible government in Victoria there have been twenty-four complete Parliaments, the first of which was opened on the 21st November, 1856, and closed on the 9th August, 1859, while the twenty-fourth closed on the 23rd October, 1917. The first session of the twenty-fifth Parliament opened on the 27th November, 1917.

Statistics regarding the elections that have been held since 1901 will be found below:—

**PARTICULARS OF VICTORIAN ELECTIONS, 1902 to 1917.**

Year.	Legislative Council.				Legislative Assembly.			
	Electors on Roll.	Electors in Contested Districts.	Voters in Contested Districts.	Per-centage.	Electors on Roll.	Electors in Contested Districts.	Voters in Contested Districts.	Per-centage.
1902 ...	134,087	*	*	*	290,241	216,063	141,471	65.47
1904 ...	172,526	104,865	66,182	63.11	264,709	223,600	149,192	66.72
1907 ...	180,738	78,512	27,152	34.58	261,088	191,131	117,098	61.26
1908 ...	185,234	*	*	*	263,876	164,919	88,461	53.64
1910 ...	240,520	136,479	40,053	35.21	487,661	*	*	*
1911 ...	249,481	*	*	*	701,451	619,644	394,189	63.61
1913 ...	270,175	99,646	47,719	47.89	670,775	*	*	*
1914 ...	284,089	*	*	*	810,026	593,334	319,950	53.92
1916 ...	300,321	92,421	34,853	37.71	767,378	*	*	*
1917 ...	308,339	*	*	*	828,230	658,488	356,999	54.21

\* Not contested.

As the table shews, the proportion of voters for the Legislative Council is considerably less than that for the Legislative Assembly.

**9. The Parliament of Queensland.**—No limit is set by the Constitution Act to the number of members of the Legislative Council of Queensland, the total at the latest available date being forty-nine. Members are appointed by the State Governor, and it is provided that not less than four-fifths of the members must consist of persons not holding any office under the Crown, except officers of His Majesty's sea or land forces on full or half-pay, or retired officers on pensions. The members are nominated for life. By The Electoral Districts Act of 1910 the Legislative Assembly is composed of seventy-two members, and the State is now divided into that number of electoral districts, and the General Election which took place in 1912 was in conformity with this new Act. A modified system of optional preferential voting is in operation in Queensland. (See Year Book No. 6, page 1183.)

*Particulars of Elections.* Since the establishment of responsible government in Queensland there have been nineteen complete Parliaments, the first of which opened on the 29th May, 1860, and dissolved on the 20th May, 1863, while the first session of the twentieth Parliament opened on the 12th July, 1915. At the elections held in May, 1915, the principle of compulsory voting was introduced for the first time in Australia. It will be seen that of the total number of electors enrolled, 88.14 per cent. went to the polls. Postponement of ballots for some of the northern electorates, on account of devastation by flood and cyclone, delayed the completion of the 1917 returns. Statistics regarding the previous seven elections are given below:—

**ELECTIONS FOR QUEENSLAND LEGISLATIVE ASSEMBLY, 1902 to 1915.**

Year	Number of Seats.	Number of Candidates Nominated.	Candidates sent to the Poll.	Electors Enrolled.			Electors who Voted.			Percentage of Electors Voting in Contested Electorates.		
				Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
1902	72	159	154	108,548	...	108,548	80,076	...	80,076	78.88	...	78.88
1904	72	140	117	103,943	...	103,943	60,265	...	60,265	74.16	...	74.16
1907	72	185	179	125,140	95,049	220,189	*	*	152,049	73.43	68.64	71.61
1908	72	137	125	117,385	88,507	205,892	77,632	61,115	138,747	66.13	69.05	67.39
1909	72	145	133	135,341	106,913	242,754	69,609	66,969	156,418	75.34	69.36	72.67
1912	72	144	139	173,801	135,789	309,590	122,844	95,735	218,639	75.92	75.02	75.53
1915	72	148	138	184,627	150,568	335,195	140,326	125,844	266,240	86.46	90.09	88.14

\* Incomplete, percentages based on available returns.

## PARLIAMENTS AND ELECTIONS—

Particulars.	Commonwealth.	New South Wales.	Victoria
<b>1 Senate and Legislative Councils.</b>			
<i>Number of Members</i> ...	36	71. May not be less than 21	34
<i>Qualification for Membership</i> ...	Adult British subjects natural-born or naturalised for 5 years, if (a) eligible to vote at the elections for the Senate, and (b) resident for at least 3 years within the Commonwealth	Male adult natural-born or naturalised British subjects	Male natural-born or naturalised British subjects of the age of 30 years or upwards, (a) if possessed of a freehold property of the annual value of at least £50 for one year previous to the election, and (b) in the case of naturalised subjects if a resident of the State for 10 years
<i>Period for which elected or nominated</i> ...	6 years	For life	6 years
<i>Allowance to Members</i> ...	£600 each per annum	None	None
<i>Qualification for Franchise</i>	Adult British subjects of either sex who have lived in Australia for 6 months continuously. Aboriginal natives of Australia, Asia, Africa, or the islands of the Pacific, except New Zealand, cannot vote at federal elections unless they have acquired a right to vote at elections for the Lower House of a State Parliament	(Nominated)	Adult British subjects of either sex, if either (a) the owner of a freehold of the annual value of £10 or of a leasehold of property rated at £15, or (b) a graduate of a British university, matriculated students of Melbourne University, qualified legal and medical practitioners, ministers of religion, certificated schoolmasters, and naval and military officers. Naturalised subjects must be of 3 years' standing, and must have resided in the State for 12 months
<b>2. House of Representatives, Legislative Assemblies, etc.</b>			
<i>Number of Members</i> ...	75	90	65
<i>Qualification for Membership</i> ...	The same as for the Senate	Male adult British subjects if qualified to vote at an election of members of the Legislative Assembly, unless disqualified under the Constitution Acts or the Federal Elections Act 1900	Male adult natural-born British subjects or aliens naturalised for the period of 5 years, if resident in the State for not less than 2 years
<i>Period for which elected</i> ...	Duration of Parliament, which is limited to 3 years	Duration of Parliament, which is limited to 3 years	Duration of Parliament, which is limited to 3 years
<i>Allowance to Members</i> ...	£600 each per annum	£500 each per annum	£300 each per annum
<i>Qualification for Franchise</i>	The same as for the Senate	Adult naturalised subjects of either sex, who have resided in the Commonwealth for 6 months, in the State continuously for 3 months and in the district for which he claims to vote, for one month after naturalisation; and adult natural-born subjects who have resided in the Commonwealth for 6 months, in the State for a continuous period of 3 months, and in the district for which he claims to vote, for one month	Adult natural-born or naturalised subjects of either sex who have resided in the State for a continuous period of 6 months. An elector may be enrolled in (a) the electorate in which he resides, and (b) in an electorate in which he is a freeholder or holder of an unexpired lease, provided that no elector can be on more than 2 rolls. He may vote in which district he chooses, but not in both



SUMMARY, MARCH, 1916.

Queensland.	South Australia.	Western Australia.	Tasmania.
49	20	30	18
Male adult natural-born or naturalised British subjects	Male natural-born or naturalised British subjects if (a) of the age of 30 years or upwards, and (b) if resident in the State for 3 years	Male natural-born or naturalised British subjects of the age of 30 years or upwards, if (a) in the case of natural-born subjects, resident in the State for 2 years, and (b) in the case of naturalised subjects, if naturalised for 5 years previous to the election and resident in the State during that period	Male British subjects, either natural-born or for at least 5 yrs. naturalised, of not less than 30 years of age, qualified to vote at the election for the Legislative Council, and who have resided in Tasmania for any continuous period of 5 years, or for a period of 2 years immediately preceding the election
For life	6 years	6 years	6 years
• None	£200 each per annum	£300 each per annum	£200 each per annum
(Nominated)	Adult British subjects of either sex who are either (a) owners of a freehold of the clear value of £50, (b) owners of a leasehold of the clear annual value of £20, with at least 3 years to run or containing a right of purchase, (c) inhabitant, occupiers of a dwelling house, (d) registered proprietors of a Crown lease on which there are improvements to the value of at least £50. Claimants must have resided in State for 6 months prior to application for enrolment	Adult British subjects of either sex who have resided in the State for 6 months, and who either (a) own a freehold estate to the value of £50, (b) occupy a house or own leasehold property rated at £17, (c) hold Crown leases or licenses to the value of not less than £10 per annum, or (d) are on the electoral list of a municipality or road-board district in respect of property of the annual value of £17. Aboriginal natives may only acquire the franchise in respect of a freehold qualification	Adult British subjects of either sex who have resided in the State for 12 months, if either (a) possessing freehold to the annual value of £10 or leasehold to the value of £30, or (b) graduates of a British university, qualified legal or medical practitioners, officiating ministers of religion, or retired naval or military officers
72	46	50	30
All persons qualified and registered to vote at the election of members of the Legislative Assembly are eligible as members	Any person qualified for the franchise of the House of Assembly is eligible for membership	Male adult British subjects, if resident in the State for 12 months. Naturalised subjects must have been naturalised for 5 years and have resided in the State for 2 years previous to the election	Male adult British subjects, either natural-born or for at least 5 years naturalised, qualified to vote at the election for the House of Assembly, and who have resided in Tasmania for any continuous period of 5 years, or for a period of 2 years immediately preceding the election
Duration of Parliament, which is limited to 3 years	Duration of Parliament, which is limited to 3 years	Duration of Parliament, which is limited to 3 years	Duration of Parliament, which is limited to 3 years
£300 each per annum and £2 per month for postage and telegrams	£200 each per annum	£300 each per annum	£200 each per annum
Adult British subjects of either sex who either (a) have resided in Queensland for 12 months continuously and whose names are on the electoral roll, (b) own freehold estate of the value of £100, (c) have occupied a house of the annual value of £10 for at least 6 months, or (d) have a leasehold estate in possession of the annual value of £20 with not less than 18 months to run	Adult natural-born or naturalised subjects of either sex who have resided in the State for 6 months	Adult natural-born or naturalised subjects of either sex who have resided in the State for 6 months continuously and for a continuous period of 1 month in district	Adult natural-born or naturalised subjects of either sex who have resided in Tasmania for 6 months continuously

\* The President is allowed £1,000 per annum, and the Chairman of Committees £500 per annum.

The election of 1907 was the first State election in Queensland at which women voted, the privilege being conferred under the *Elections Acts Amendment Act 1905*. Some of the returns did not separate the sexes in the figures respecting the number of electors who voted, and the percentage of males and females was therefore calculated on the total returns where the subdivision was made.

**10. The Parliament of South Australia.**—In this State there is a Legislative Council composed of twenty members and a House of Assembly with forty-six members, both chambers being elective. Under the Constitution Amendment Act 1908, the State of South Australia was divided into four Council Districts, of which one returned six members, and the others returned four members each, to the Legislative Council, but under the Constitution Further Amendment Act of 1913, the State is now divided into five districts, which return four members each, making a total of twenty members instead of eighteen as formerly. For the purpose of electing members of the House of Assembly the State was divided into twelve electoral districts, but under the Act of 1913 mentioned above, the State has been divided into nineteen districts, which return forty-six members instead of forty as formerly. The former districts returned five members from one district, four members from two, and three each from the balance. Under the new Act, eight districts return three members each, and eleven districts two members each.

*Particulars of Elections.* Since the inauguration of responsible government in South Australia there have been twenty-two complete Parliaments, the first of which was opened on the 22nd April, 1857, and dissolved on the 1st September, 1859, while the twenty-second was opened on the 8th July, 1915, and terminated on the 28th February, 1918. The first session of the new Parliament was opened on the 25th July, 1918. Particulars of voting at the different elections from the year 1900 are given below :—

#### PARLIAMENTARY ELECTIONS IN SOUTH AUSTRALIA, 1900 to 1918.

Year.	Electors on Rolls.			*Electors Who Voted.			*Percentage of Electors Voting.	
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.
LEGISLATIVE COUNCIL.								
1900 ...	38,688	9,854	48,542	21,403	3,907	25,310	55.32	39.65
1902 ...	38,413	13,496	51,909	29,978	7,940	37,918	78.04	58.83
1905 ...	39,011	13,873	52,884	28,820	8,328	37,148	73.88	60.03
1910 ...	48,145	16,157	64,302	32,540	9,356	41,896	81.84	65.89
1912 ...	59,228	19,985	79,213	40,709	13,016	53,725	80.91	72.56
1915 ...	66,614	21,635	88,249	11,436	4,808	16,244	75.69	71.25
1918 ...	71,510	23,461	94,971	42,987	11,800	54,787	60.11	50.30
HOUSE OF ASSEMBLY.								
1902 ...	77,147	72,030	149,177	53,471	36,545	90,016	39.31	50.73
1905 ...	95,396	92,249	187,645	64,330	50,246	114,576	67.43	54.47
1906 ...	96,724	93,438	190,162	60,109	45,997	106,106	62.14	49.22
1910 ...	94,656	88,762	183,418	73,464	56,830	130,294	77.61	64.03
1912 ...	117,440	106,971	224,411	87,530	73,732	161,262	74.53	68.93
1915 ...	128,594	124,797	253,391	70,898	65,157	136,055	77.22	72.64
1918 ...	126,669	132,043	258,712	71,501	62,742	134,243	56.45	47.52

\* In contested districts.

It is interesting to note that South Australia was the first of the States to grant women's suffrage (under the *Constitution Amendment Act 1894*), the franchise being exercised for the first time at the Legislative Assembly election on the 25th April, 1896.

**11. The Parliament of Western Australia.**—In this State both chambers are elective. For the Legislative Council there are thirty members, each of the ten provinces returning three members, while the Legislative Assembly is composed of fifty members, one member being returned by each of the fifty electoral districts. At the expiration of two years from the date of election to a seat in the Legislative Council, and every two years thereafter, the senior member for the time being for each province retires. Seniority is determined (a) by date of election, (b) if two or more members are elected on the same day, then the senior is the one who polled the least number of votes, (c) if the election be uncontested, or in case of an equality of votes, then the seniority is determined by the alphabetical precedence of surnames and, if necessary, Christian names. Members of the Legislative Assembly are elected for three years.

*Particulars of Elections.* Since the establishment of responsible government in Western Australia there have been nine complete Parliaments, the first of which was opened on the 30th December, 1890, while the first session of the tenth Parliament commenced on the 20th November, 1917. Women's suffrage was granted by the *Electoral Act* of 1899. The preferential system of voting in use in Western Australia is described in Year Book No. 6, page 1184. Particulars relating to the last seven Assembly and six Council elections are given in the tables below :—

**PARLIAMENTARY ELECTIONS, WESTERN AUSTRALIA, 1901 to 1918.**

Year.	Electors on the Roll.			In Contested Districts.			Votes Recorded.			Percentage of Electors Voting.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.

**LEGISLATIVE ASSEMBLY.**

1901	74,874	16,648	91,522	67,967	14,775	82,742	29,832	8,255	38,087	44	56	46
1904	108,861	54,965	163,826	88,524	49,791	138,315	43,285	23,500	66,785	49	47	48
1905	79,025	42,697	121,722	65,296	36,706	102,002	33,482	19,435	52,917	51	53	52
1908	83,060	52,919	135,979	69,377	44,804	114,081	46,411	29,413	75,823	67	66	66
1911	91,814	60,831	152,645	71,675	50,700	122,375	53,355	38,281	91,636	74	75	75
1914	126,598	88,143	214,741	96,503	72,043	168,546	54,612	41,993	96,605	57	58	57
1917	93,106	73,845	166,951	76,445	61,310	137,755	45,453	40,167	85,620	59	65	62

**LEGISLATIVE COUNCIL.**

1909	29,255	6,543	35,798	19,233	4,508	23,741	10,210	2,283	12,493	53	51	52
1910	31,983	7,553	39,536	31,290	7,495	38,785	13,020	2,461	14,481	38	33	35
1912	36,716	10,437	47,153	33,490	9,818	43,308	20,733	5,552	26,285	62	57	59
1914	43,299	12,423	55,722	36,793	9,822	46,615	22,963	5,556	28,519	62	57	61
1916	45,325	13,683	59,008	19,950	4,877	24,827	10,672	2,464	13,136	53	51	53
1918	46,272	14,700	60,972	35,963	12,348	48,310	14,043	3,930	17,973	39	31	37

**12. The Parliament of Tasmania.**—In Tasmania there are two legislative chambers—the Legislative Council and the House of Assembly, both bodies being elective. The Council consists of eighteen members, returned from fifteen districts, Hobart returning three, Launceston two, and the remaining thirteen districts sending one member each. For the Parliament which expired in March, 1909, there were thirty-five House of Assembly districts, each district returning one member, but, in accordance with the Constitution Amendment Act of 1906, upon the expiration of the last Assembly, either by dissolution or by effluxion of time, there are now five House of Assembly districts, viz., the Commonwealth electoral districts, each district returning six members, who are elected under a system of proportional representation which first came into force at the 1909 elections. (See Year Book No. 6, page 1185.) Women's suffrage was first granted in this State under the *Constitution Amendment Act 1903*.

*Particulars of Elections.* The first Tasmanian Parliament opened on 2nd December, 1856, and closed on 8th May, 1861. There have been nineteen complete Parliaments since the inauguration of responsible government. The first session of the twentieth Parliament opened on 16th May, 1916. Particulars of the voting at the last seven elections are given hereunder:—

#### ELECTIONS, HOUSE OF ASSEMBLY, TASMANIA, 1900 to 1916.

Year.	Electors on Roll.		Electors in Contested Districts.		Votes Recorded.		Percentage of Electors Voting.	
	Males	Females.	Males.	Females.	Males.	Females.	Males.	Females.
1900 ...	39,002	...	29,022	...	18,872	...	65.02	...
*1903 ...	43,999	...	40,267	...	23,766	...	59.87	...
1906 ...	47,400	41,629	37,120	33,415	23,128	17,194	62.80	51.46
1909 ...	50,221	45,563	50,221	45,563	30,509	19,893	60.74	43.67
1912 ...	52,853	50,660	52,853	50,660	40,713	35,337	77.03	69.73
1913 ...	53,372	51,920	53,372	51,920	38,700	32,102	72.51	61.83
1916 ...	54,466	52,855	54,466	52,855	41,427	37,557	76.06	71.05

\* Manhood suffrage, Act 64 Vic., No. 5. Universal adult suffrage, Act 3 Edward VII., No. 17, has been prescribed at all subsequent elections.

### § 3. Administrative Government.

In each State, as well as in the Commonwealth, the Government is administered by a number of chief departments, on lines similar to those on which administrative government is carried on in the United Kingdom. Reference has already been made to the creation of the Commonwealth Departments (see page 759). In the States the number and functions of the administrative departments vary considerably. This matter has also been referred to hereinbefore (see page 787). In many cases more than one department is under the control of a single Minister. The tabular statement given on this page and on the following pages shows the sub-departments, branches, etc., of each Ministerial Department in the Commonwealth and in each State, together with the principal Acts administered and other more important matters dealt with.

#### COMMONWEALTH ADMINISTRATIVE GOVERNMENT, 1918.

Departments, Sub-departments, Branches, etc.	Principal Acts Administered.	Matters dealt with or under Control.
1. Prime Minister's— (a) Auditor-General. (b) Public Service Commissioner. (c) High Commissioner.	Arbitration (Public Service), Committee of Public Accounts, Commonwealth Public Works Committee, Commonwealth Public Service, Commonwealth Salaries, Meat Export Trade Commission, Ministers of State Act, Parliamentary Allowances, Petherick Collection, Royal Commissions, High Commissioner, Papua, Pacific Islands.	Auditor-General and Staff, Officers of the Parliament, Public Service Commissioner and Staff, Royal Commissions, the Federal Executive Council, Historic Memorials, Passports, Papua, External Affairs, Pacific Islands, Consular Appointments.
2. Attorney-General's— (a) Crown-Solicitor. (b) High Court. (c) Patents, Copyright, Designs, and Trade Marks.	Acts Interpretation, Amendments Incorporation, Bills of Exchange, Commonwealth Conciliation and Arbitration, Copyright, Crimes, Designs, Enemy Contracts Annulment, Evidence, Extradition, High Court Procedure, Judiciary, Parliamentary Papers, Patents, Trade-marks and Designs, State Law and Records Recognition, Statutory Declarations.	Bankruptcy and Insolvency, Bills of Exchange and Promissory Notes, Conciliation and Arbitration, Copyright, Crown Law Offices, Designs, Divorce and Matrimonial Causes, Foreign Corporations, Judiciary and Courts, Patents, Parliamentary Drafting, Trade-marks, Trading and Financial Corporations formed within the limits of the Commonwealth.

## COMMONWEALTH—(continued).

Departments, Sub-Departments, Branches, etc.	Principal Acts Administered.	Matters dealt with or under Control.
3. Defence—	Defence, War Precautions.	Administration of Territory in Military Occupation, Control of Railways with respect to transport for Naval and Military purposes, Land Defence of the Commonwealth, Naval and Military Defence, Naval and Military Factories and Workshops, Provision of Troops for Active Service Abroad, Royal Military College.
4. Navy—	Naval Defence, Naval Discipline, Wireless Telegraphy.	Construction and Repairs of Vessels for Commonwealth Departments, Naval Bases, Naval Defence, Dockyards, Naval Marine Works, Wireless Telegraphy.
5. Postmaster-General's—	Pacific Cable, Post and Telegraph, Telephone.	Postal, Telegraph and other like services.
6. Treasury— (a) Taxation Department. (b) Old Age Pensions. (c) Maternity Bonus. (d) Government Printer. (e) War Pensions.	Appropriation, Audit, Australian Notes, Bank Notes Tax, Coinage, Commonwealth Bank, Commonwealth Inscribed Stock, Constitution Alteration (State Debts), Estate Duty, Income Tax, Invalid and Old-Age Pensions, Land Tax, Life Assurance (Companies), Loan Acts, Marine Insurance, Maternity Bonus, Supply, Treasury Bills, War Loan, War Pensions.	Appropriation and Supply, Banking, Currency, Government Printer, Insurance, Invalid and Old-Age Pensions, Maternity Bonus, Pensions and Retiring Allowances, Public Loans, Public Moneys, State Debts, Taxation (other than duties of Customs and of Excise), War Pensions, Workmen's Compensation.
7. Trade and Customs— (a) Customs and Excise. (b) Fisheries. (c) Navigation. (d) Quarantine.	Australian Industries Preservation, Beer Excise, Bounties, Commerce (trade descriptions), Customs, Distillation, Excise, Interstate Commission, Iron Bounty, Lighthouse, Manufactures Encouragement, Quarantine, Sea-carriage of Goods, Seamen's Compensation, Secret Commissions, Shale Oils Bounties, Spirits, Sugar Purchase, Trading with the Enemy.	Bounties, Customs and Excise, Fisheries (other than Pearl Shell or Trepang) in Australian waters beyond territorial limits, Interstate Commission, Lighthouses, Beacons and Buoy, Quarantine, Trade and Commerce, Navigation and Shipping.
8. *Home and Territories— (a) Bureau of Census and Statistics. (b) Electoral Office. (c) Lands and Surveys. (d) Meteorological Office.	Census and Statistics, Commonwealth Electoral, Commonwealth Franchise, Compulsory Voting, Constitution Alteration (Senate Elections), Contract Immigrants, Emigration, Governor-General's Residences, Jervis Bay Territory Acceptance, Lands Acquisition, Meteorology, Naturalisation, Norfolk Island, Referendum (Constitution Alteration), Referendum (Military Service), Representation, River Murray Waters, Seat of Government, War Census.	Astronomy, Census and Statistics, Elections, Franchise, Lands, and Surveys. Meteorology, Representation of the People Rivers, Seat of Government Immigration and Emigration, Naturalisation and Aliens, Territories forming part of the Commonwealth.
9. *Works and Railways—	Kalgoorlie to Port Augusta Railway, Pine Creek to Katherine River Railway.	Public Works, Railways, Rivers.

\* From 14th November, 1916, the Departments of Home Affairs and External Affairs were abolished, their functions being divided between the Prime Minister's Department and two new departments, Home and Territories, and Works and Railways.

## NEW SOUTH WALES.—ADMINISTRATIVE GOVERNMENT, 1918.

Departments, Sub-Departments, Branches, etc.	Principal Acts Administered.	Matters dealt with or under Control.
<b>1. Premier's Office—</b> (a) Governor's Establishment. (b) Immigration & Tourist Bureau. (c) Agent-General's Office, London. (d) Immigration Department, London. (e) Executive Council.	...	Is charged with—Correspondence with the Houses of Parliament, other Governments, foreign Consuls, the Agent-General, the Commercial Commissioner in the East (Japan), Immigration matters, matters of Government policy.
<b>2. Chief Secretary—</b> (a) Audit Dept. (b) Police Dept. (c) State Fisheries. (d) Aborigines Protection Board. (e) Board of Fire Commissioners. (f) Electoral Office. (g) Registry of Friendly Societies & Trade Unions. (h) Bureau of Statistics. (i) State Trawling Industry.	Electorates & Elections, Audit, Banks and Bank Holidays, Birds Protection, Bread, Building and Co-operative Societies, Sunday Closing, Constitution, Fire Brigades, Fisheries, Friendly Societies, Gaming and Betting, Totalisator, Metropolitan Traffic, Native Animals Protection, Native Dogs Destruction, Police Offences, Police Regulation, Printing, Sydney Corporation, Theatres and Public Halls, Vagrancy, Weights & Measures, Motor Traffic, Aborigines Protection.	Is charged with—the public seal, appointment of magistrates, the police, theatrical, public entertainments and racecourse licenses, general elections, franchise, statistics, Lord Howe Island, and all matters of business not expressly assigned to any other department.
<b>3. Public Health—</b> (a) Inspector-General of Insane. (b) Director-General of Public Health. (c) Master in Lunacy. (d) Dental Board. (e) Medical Board. (f) Board of Official Visitors Mental Hospital. (g) Meat Industry and Abattoirs Board. (h) Pharmacy Board.	Lunacy, Inebriates, Public Health, Dentists, Diseased Animals and Meat, Medical Practitioners, Public and Private Hospitals, Dairies Supervision, Pure Food, Cattle Slaughtering, Smoke Nuisance, Meat Industry, Poisons.	Private hospitals, treatment of insane and inebriates, public vaccinators, hospitals and charitable institutions, public health, etc.
<b>4. Treasury—</b> (a) Stamp Duties Office. (b) Taxation Dept. (c) Government Printing Office. (d) Explosives Dept. (e) Shipping Offices, Sydney and Newcastle. (f) Navigation Dept. (g) Resumed Properties Office. (h) Stores Supply Department. The following departments are connected with the Treasury though administered by Commissioners:— (a) Housing Board. (b) Sydney Harbour Trust. (c) Government Savings Bank.	Stamp Duties, Land & Income Tax, Merchant Shipping, Wharfage and Tonnage Rates, Sydney Harbour Trust, Government Savings Bank, Explosives, Inflammable Liquids, Navigation, Housing.	The financial business of the Government generally, including the collection of the public revenue and the payment of all claims against the Government; the inscription and management of Government stocks, the control and management of the Government insurance business, both fire, marine, accident, and fidelity.
<b>5. Dept. of Attorney-General and of Justice—</b> (a) Prothonotary & Registrar in Divorce. (b) Master in Equity. (c) Sheriff. (d) Registrar in Bankruptcy. (e) Registrar of Probates, etc. (f) Crown Solicitor. (g) Parliamentary Draftsman. (h) Clerk of the Peace. (i) Registrar of Sydney District Court. (j) Registrar-General. (k) City Coroner. (l) Children's Court. (m) Petty Sessions. (n) Police Magistrates, Clerks of Petty Sessions and Registrars of District Courts. (o) Prisons Department. (p) Public Service Board. (q) Public Trustee.	Auctioneers, Bankruptcy, Companies, Contractors' Debts, Coroners, Crimes, Courts of Justice, Fines and Penalties, Hawkers, Inebriates, Interstate Debts, Liens on Crops, Liquor, Lotteries, Marriage, Money-lenders, Newspapers, Pawnbrokers, Prisons, Public Service, Public Trustee, Real Property, Registration of Births, Deaths, and Marriages, Registration of Deeds, Registration of Firms, Sheriff, Small Debts, Wills, Probate and Administration, Poor Prisoners' Defence, Influx of Criminals, Fair Rent.	Is charged with—business relating to the offices of the Chief Justice and Puisne Judges, Supreme Courts, District Courts, Gaols and Penal establishments, Circuit Courts and Quarter Sessions, deals with all matters relating to remission of sentences, or of fines or estates or control of Court houses, etc., and advises the Govt. on all legal questions.

## NEW SOUTH WALES—(continued).

Departments, Sub-Departments, Branches, etc.	Principal Acts Administered.	Matters dealt with or under Control.
<p>6. Department of Lands—            (a) Survey of Lands.            (b) Local Land Boards.            (c) Trigonometrical Survey.            (d) Land Appeal Court.            (e) Western Land Board.            (f) Closer Settlement Advisory Boards.            (g) Returned Soldiers' Settlement.</p>	<p>Crown Lands, Newcastle Pasturage Reserve, Public Roads, Public Parks, Public Gates, Public Trusts, Prickly Pear Destruction, Western Lands, Closer Settlement, Returned Soldiers' Settlement, Rural Tenants Improvements, Voluntary Workers (Soldiers' Homes) Act.</p>	<p>All business arising from tenures created by Crown Lands. Acts and other Acts mentioned, dedications and reservations, exchanges of land, proclamation of towns and villages, business connected with Land Appeal Court, local boards, district surveyors, and Crown land agents; survey of Crown lands, and triangulation survey of State, and making lands available for settlement.</p>
<p>7. Dept. of Public Works.—            (a) Architects Branch. (b) National and Local Government Works. (c) Harbours and Drainage. (d) Survey Drafting. (e) Water Supply and Sewerage Construction. (f) Electrical Engineering. (g) Accounts. (h) Legal and Industrial. (i) Testing and Inspection. (j) Government Dockyard, Newcastle. (k) The follow-Industrial Undertakings, viz.:—Building Construction I.U., Maroubra Quarry I.U., State Brickworks, Homebush Bay, State Metal Quarries, State Monier Pipe and Reinforced Concrete Works, State Motor Garage, State Power Station, Uhr's Point, State Timber Yards and Building Workshops, Uhr's Point. (l) Metropolitan Board of Water Supply and Sewerage. (m) Hunter District Water Supply and Sewerage Board, and (n) Country Towns Water Supply and Sewerage.</p>	<p>Public Works Act 1912, and all Acts authorising the carrying out of Public Works. Metropolitan Water and Sewerage Acts 1880-1915. Hunter District Water Supply and Sewerage Acts 1880-1905. Country Towns Water and Sewerage Acts, and such provisions of the Water Act 1912 as relate to drainage and flood prevention. Public Watering Places Act 1900 (except such sections as are administered by Municipal and Shire Councils), and certain Acts dealing with Main and Parish Roads, Bridges, Tolls, etc.</p>	<p>Construction of water supply works in Sydney and Newcastle and suburbs and in country towns. Construction of sewerage and drainage works in Sydney and Newcastle and suburbs in country towns. The erection, maintenance and repair of public buildings. The dredging and improvements of harbours and rivers, excepting such works as are vested in the Sydney Harbour Trust Commissioners. Construction and repair of wharves, basins and breakwaters, except such works as are vested in the Sydney Harbour Trust Commissioners. The construction and maintenance of docks and engineering establishments. The construction of land drainage works. The formation and maintenance of roads other than those vested in Shires and Municipal Councils. The construction and maintenance of national bridges and bridges outside municipalities in the western division. The management of national ferries and ferries outside municipalities in the western division. The maintenance of public watering places other than those under the control of Municipal and Shire Councils. The resumption of land for public purposes.</p>
<p>8. Department of Mines—            (a) Ministerial Branch. (b) Registrar and Inquiry. (c) Account and Examining. (d) Lease. (e) Charting and Mining Survey. (f) Geological Survey. (g) Geological Survey Laboratory. (h) Inspectors of Mines and Drills. (i) Miners' Accident Relief Board. (j) Prospecting Board. (k) Mining Museum. (l) Sludge Abatement Board. (m) Coalfields. (n) Correspondence. (o) Records. (p) State Coal Mines.</p>	<p>Mining, Miners' Accident Relief, Mines Inspection, Coal Mines Regulation, State Coal Mines.</p>	<p>All matters relating to mining, generally, geological and mining surveys, assays, inspection of mines, miners' accident relief, advances to prospectors.</p>

## NEW SOUTH WALES—(continued).

Departments, Sub-Departments, Branches, etc.	Principal Acts Administered.	Other Matters dealt with or under Control.
<b>9. Dept. of Agriculture—</b> (a) Administrative. (b) Accounts. (c) Stock. (d) State Wheat Office. (e) Field Branch. (f) Fruit Expert. (g) Exports and Imports. (h) Library and 'Agricultural Gazette.' (i) Sheep and Wool Expert. (j) Dairy Expert. (k) Chemist. (l) Entomologist. (m) Viticultural Expert. (n) Poultry Expert. (o) Herd Master. (p) Biologist. (q) Tobacco Expert. (r) Botanic Gardens, Centennial Park, etc. (s) Hawkesbury Agricultural College. (t) Experiment Demonstration Farms. (u) Agricultural Museum.	Vine and Vegetation Diseases, Fruit Pests, Wine Adulteration, Fertilizers, Pastures Protection, Commons, Stock, Stock Diseases, Trustees of Show Grounds Enabling, Fruit Cases, Dairy Industry, Apiaries, Bulk Handling of Wheat.	Matters relating to agriculture, stock, including experiment and demonstration farms, viticultural stations and nurseries, experiment plots, Agricultural College, Farm Schools, Veterinary Experiment Farm, Bee Farm, Botanic Gardens, Centennial Park and Sydney Domain, irrigation farms, diseases of stock, plant pests; publication of Agricultural Gazette and Bulletins, Agricultural Bureau.
<b>10. Dept. of Public Instruction—</b> (a) Ministerial Branch. (b) Chief Inspector's Branch. (c) School Architect's Branch. (d) Teachers' Training College. (e) Technical Education, including Technological Museum and Aviation School. (f) State Children's Relief. (g) Industrial Schools and Reformatories. (h) National Art Gallery. (i) Conservatorium of Music. (j) Public Library. (k) Australian Museum. (l) Observatory. (m) Schools of Arts, Literary Institutions, etc.	Public Instruction, Free Education, State Children's Relief, Children's Protection, Infant Protection, Neglected Children and Juvenile Offenders, Anatomy, Public Library and Art Gallery, Australian Museum, Schools of Arts, University and University Colleges, Sydney Grammar School, Bursaries Endowment, Trades Hall, School of Arts Trustees Enabling.	Education; high schools, district schools, continuation (junior, technical, commercial and domestic) schools, day and evening, kindergartens and subsidised teaching, correspondence school, boys' employment bureau, technical education, scholarships, medical inspection of school children, anthropometrical survey of school children, rural camp schools for city children, travelling schools, school agriculture, physical training, swimming, etc.
<b>11. Department of Labour and Industry—</b>	Early Closing, Factories and Shops, Shearers' Accommodation, Saturday Half Holiday, Industrial Arbitration, Gas, Workmen's Compensation Act, Agreements Validating, Apprentices, Eight Hours, Scaffolding, and Lifts.	Working conditions in factories and shops, early closing, regulation of matters proceeding from the Court and Boards under the Industrial Arbitration Acts, investigation of industrial complaints, industrial intelligence (legal and economic), and industrial matters generally, unemployment, control of private employment agencies, organization of the labour market.

## VICTORIA.—ADMINISTRATIVE GOVERNMENT, 1918.

<b>1. Chief Secretary—</b> (a) Board for the Protection of Aborigines. (b) Public Service Commissioner. (c) Registry of Friendly Societies. (d) Observatory. (e) Government Statist. (f) Marine Board. (g) Audit. (h) Lunacy. (i) Explosives. (j) Mercantile Marine. (k) Marine Board. (l) Neglected Children and Reformatory Schools. (m) Penal and Gaols. (n) Police. (o) Premier's Office. (p) Inspection of Stores. (q) Public Library. (r) Government Shorthand Writer. (s) Training Ships. (t) Fisheries and Game.	Aborigines, Animals Protection, Constitution, Crimes, Explosives, Fire Brigades, Friendly Societies, Gaols, Inebriates, Libraries, Licensing (part), Lunacy, Marine, Medical, Neglected Children, Poisons, Police Offences, Public Service, Registration of Births, Deaths and Marriages, Theatres, Weights & Measures, Dentists, Infant Life Protection, Statistics, Opium (part), Motor-car, Electoral, Preferential Voting, Workers' Compensation, Fisheries, Game.	Departmental business connected with the Houses of Parliament, execution of capital sentences, local option, prisons, the Govt. Gazette, Lotteries, Gaming and Betting, Public Library, Museum and Art Gallery, "Hansard," Police, Public and Bank Holidays, Fisheries, Game, and other matters as indicated in columns 1 and 2.
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## VICTORIA—(continued).

Departments, Sub-Departments, Branches, etc.	Principal Acts Administered.	Matters dealt with or under Control.
<b>2. Attorney-General and Solicitor General—</b> (a) Supreme Court. (b) County Court, Courts of General Sessions and Court of Insolvency. Courts of Petty Sessions. (c) Crown Law Offices. (d) Crown Solicitor. (e) Master in Equity and Lunacy. (f) Prothonotary. (g) Registrar of Titles. (h) Sheriffs. (i) Comptroller of Stamps. (j) Official Accountant (Insolvency).	Justices, Administration and Probates, Coroners, Licensing (part), Crimes, Children's Courts, Companies, Crown Remedies, Partnership, Hawkers, Insolvency, Mines (part) Money lenders, Pawnbrokers, Real Property, Transfer of Land, Stamps, Trusts, Book Debts, Supreme Court, County Court.	Bankruptcy and insolvency, administration and probate, control of courthouses, etc., preparation of legal instruments, administration of justice generally, and advice to Government in all legal questions.
<b>3. Treasury—</b> (a) Land and Income Tax Office. (b) Printing Office. (c) Curator of Intestate Estates. (d) Charities. (e) Tender Board.	Auction Sales, Hospitals and Charities, Public Moneys, Savings Bank, Income Tax, Licensing (part), State Land Tax.	Conduct of finances, financial aid to charities, endowment to municipal institutions.
<b>4. Public Instruction—</b>	Education, Public Service (part).	Education generally, supervision of the Training College, registration of teachers & schools.
<b>5. Railways—</b>	Railways and other Acts relating to specific railways and railway loans.	Management and maintenance of Government railways and electric trams.
<b>6. Mines—</b>	Mines, Gold Buyers, Boilers Inspection, Mines Development, Coal Mines Regulation.	Mining leases and licenses, licenses to buyers of virgin and wrought gold, inspection of mines, inspection of boilers, factory and mining engine drivers.
<b>7. Water Supply—</b>	Water, Waterworks Construction, Water Supply, Loans Application, Closer Settlement (part), Discharged Soldiers' Settlement.	Administration of various water works trusts, construction of water works and irrigation systems, boring for water, acquisition and disposal of land in irrigation districts for closer settlement of discharged soldiers.
<b>8. Agricultural—</b>	Agricultural Colleges, Vegetation Diseases, Stock Diseases, Dairy Supervision, Thistle, Vegetation and Vine Diseases, Sheep Dipping, Bees, Fertilizers, Fruit, Seeds, Shearers' Hut Accommodation, Fungicides.	Agricultural colleges & experimental farms, lectures and demonstrations in practical and theoretical agriculture, etc.
<b>9. Lands—</b> (a) Survey. (b) Botanic Gardens and Domain. (c) Land Purchase & Management Board. (d) Immigration and Labour Bureau.	Lands, Closer Settlement, Vermin Destruction, Local Government (part), Seed Wheat Advances, Bush Fires Loan, State Aid Abolition, Mines (part), Discharged Soldiers' Settlement Act.	Survey, sale, and administration of Crown lands, including occupation for industrial, agricultural, and pastoral purposes, immigration, assisted and nominated passages and employment.
<b>10. Public Works—</b> (a) Roads and Bridges and Local Govt. Brch. (b) State Schools. (c) Dredges and Snagging. (d) Ports and Harbours.	Local Government, Electric Lighting and Power, Pounds, Dog, Unused Roads and Water Frontages, Tramways, Drainage Areas, Country Roads.	Construction of public works, lighthouses, and signal stations, Government steamer.
<b>11. Labour—</b>	Factories and Shops, Servants, Registry Office, Lifts Regulation, Footwear Regulation.	Inspection of factories, work-shops and shops, wages boards, engagement of servants, lifts, stamping of footwear.
<b>12. Forests—</b>	Forests.	
<b>13. Public Health—</b>	Health, Midwives, Venereal Diseases, Cemeteries, Pure Food, Goods (Merchandise Marks).	Public health generally, including inspection of food, supervision of meat, false trade descriptions, midwifery, venereal diseases, sanatoria for tuberculosis.

## QUEENSLAND.—ADMINISTRATIVE GOVERNMENT, 1918.

Departments, Sub-Departments, Branches, etc.	Principal Acts Administered.	Matters dealt with or under Control.
<b>1. Chief Secretary—</b> (a) Auditor-General. (b) Agent-General. (c) Bureau of Exchange of International Publications. (d) Govt. Residency, Thursday Island. (e) Immigration Dept. (f) Intelligence & Tourist Bureau. (g) S.S. <i>Lucinda</i> . (h) Pub. Library, Art Gallery, and Museum.	Constitution, Extradition, Immigration, Officials in Parliament, Public Service, Standard Time.	Commissions, etc., under Public Seal of State, foreign correspondence, immigration, justices of the peace, legislation, public service, communications with Governor and with States, Commonwealth, British, colonial, and foreign Governments.
<b>2. Public Instruction—</b>	University, Grammar Schools, State Education, Technical Instruction.	Primary education, inspection of denominational schools, medical inspection of schools, schools of art and technical colleges, grammar schools, naval schools, State high schools, school committees, Teachers' Training College, University of Queensland.
<b>3. Railways—</b>	Railways and Railway Construction.	Railways and tramways management and construction.
<b>4. Home Secretary—</b> (a) Government Advertising Office. (b) Department of Public Health. (c) Registrar-General. (d) Dental Board. (e) Local Auditors Board. (f) Medical Board. (g) Aborigines. (h) Benevolent Asylum. (i) Opticians' Board. (j) Police. (k) Prisons. (l) State Children. (m) Cemeteries. (n) Conciliation Boards. (o) Dalby Sanatorium. (p) Diamantina Hospital for Incurables. (q) State Children's Department. (r) Government Statistician. (s) Pharmacy Board. (t) Hospitals for Insane. (u) Government Relief Departments.	Aborigines, Holidays, Careless Use of Fire, Cemetery, Charitable Institutions, Children's Protection, Dental, Fencing, Fire Brigades, Hawkers, Health, Hospital, Industrial Schools, Inebriates, Influx of Criminals Prevention, Insanity, Legitimations, Liquor, Local Govt., Medical, Native Labourers, Opticians, Pharmacy, Police, Prisons, Religious etc. Institutions, Registration Births, etc., State Children, Statistics, Traffic.	Is charged with business connected with—aboriginals, cemeteries, fire brigades, holidays, hospitals and charitable institutions, industrial & reformatory schools, infant life protection, insanity, lazarets, local Government, outdoor relief, police, prisons, public health, quarantine, remission and execution of sentences and penalties, State children, State hotel, miscellaneous services, and all other matters of internal arrangement not confided to any other Minister.
<b>5. Treasury—</b> (a) Government Analyst. (b) Govt. Printing Office. (c) Government Stores. (d) Harbours and Rivers Department. (e) Land and Income Tax Office. (f) Marine Department. (g) Marine Board. (h) Water Supply Department. (i) Comptroller of Central Sugar Mills. (j) State Fisheries.	Coast Survey, Explosive, Fisheries and Fish Supply, Annuities, Auctioneers, Harbours, Income Tax, Land Tax, Irrigation, Loans, Shipping and Navigation, Port Dues Revision, Firms Registration, Water Conservation, Stock Inscription, Sugar Works, Treasury Notes and Bills, Tobacco, Water Authorities, Weights and Measures.	Central sugar mills, dredges, fisheries, fish market, finance generally, harbour boards and improvements, navigation, ports and harbours, explosives magazines, printing, public debt, registration of firms, taxation generally, trade and commerce, water supply, water conservation, weights and measures, wharves and jetties.
<b>6. Attorney-General—</b> (a) Crown Solicitor. (b) Supreme & District Courts. (c) Public Curator. (d) Registry of Friendly Societies. (e) Registry of Titles. (f) Com. of Stamps. (g) Police Magistrates. (h) Petty Sessions. (i) Public Service Superannuation. (j) Sheriff. (k) State Insurance. (l) Electoral.	Justiciary, Building Societies, Companies, Friendly Societies, Inquests, Insurance, Leases to Aliens, Printing, Real Property, Public Curator, Public Service Superannuation, Stamp, Succession and Probate, Totalisator, Trade Unions, Workers' Compensation, Gaming.	Administration of justice generally, advising Government on all legal questions, judicial establishments, courts of petty sessions, preparation of all legal instruments and contracts, electoral matters, by-laws and regulations under statutes.
<b>Mines—</b> (a) Geological Survey. (b) Wardens and Mining Registries. (c) Mines Inspection	Mining, Mines Regulation, School of Mines.	Geological survey, mining fields, regulation of mines, Charters Towers School of Mines.

## QUEENSLAND—(continued).

Departments, Sub-Departments, Branches, etc.	Principal Acts Administered.	Matters dealt with or under Control.
<b>8. Public Lands—</b> (a) District Land Offices. (b) District Survey Offices. (c) Survey Office. (d) Forestry.	Closer Settlement, Crown Lands, Pastoral Leases, State Forests and National Parks, Pub. Works Land Resumption, Rabbit, Marsupial-proof Fencing.	Destruction, etc., of rabbits and prickly pear, opening and closing roads, reserves, settlement of Crown lands, lands survey, forestry, public estate improvement, State stations, Soldier Settlement.
<b>9. Agriculture—</b> (a) Agricultural College. (b) Inspectors of Stock and Brands & Registry of same. (c) Inspector of Dairies. (d) Botanic Gardens. (e) State Farms and Nurseries. (f) Sugar Experiment Stations. (g) Stock Diseases Experiment Stations. (h) Chemical Laboratory. (i) Central Sugar Cane. (j) Prices Board. (k) State Produce Agency.	Brands, Dairy, Diseases in Plants, Stock, Game and Fish Acclimatisation, Fertilizers, Live Stock and Meat Export, Margarine, Marsupial Boards, Native Animals and Birds Protection, Slaughtering, Sugar Cultivation, Sugar Cane Prices, Pure Seeds, State Produce Agency.	Agric. College, Botanic Gardens, brands and earmarks of stock, diseases in animals and plants, travelling of stock, loans in aid of co-operative agricultural production, marsupial destruction, protection of native birds and animals, slaughter of cattle for consumption, State farms and nurseries, stock and sugar experiment stations.
<b>10. Public Works—</b> (a) Under-Secretary for Works, Govt. Architect, and Engineer for Bridges. (b) Labour and Factories. (c) Inspection of Machinery and Scaffolding. (d) Court of Industrial Arbitration. (e) Gas Testing.	Metropolitan Water and Sewerage, Electric Light and Power, Factories and Shops, State Industrial Arbitration, Inspection of Machinery and Scaffolding, Workers' Accommodation, Labour Exchanges, Gas Trade Unions.	Construction of public buildings, State-school buildings, technical colleges, bridges, hospitals, prisons, court houses, police stations, Government Savings Banks, State hotels, State fish markets and cold storage, State retail butcheries.

## SOUTH AUSTRALIA.—ADMINISTRATIVE GOVERNMENT, 1918.

<b>1. Premier and Chief Secretary—</b> (a) Government Reporting Dept. (b) Railways Standing Committee. (c) Royal Commissions. (d) Govt Motor Garage. (e) Statistical Dept. (f) Audit. (g) Public Actuary. (h) Sheriff. (i) Registrar-General. (j) Government Printer. (k) Police. (l) Central Board of Health. (m) Hospitals. (n) Mental Hospital. (o) Destitute Persons. (p) State Children. (q) Gaols and Prisons. (r) Public Service Commissioners. (s) Places of Public Entertainment.	Railways Standing Committee Act, War Funds Regulation Act, Civil Service, Audit, Friendly Societies, Registration of Births, Deaths, and Marriages, Prisons, Police, Legitimation, Public Hospitals, Mental Defectives, State Children, Health, Vaccination, Places of Public Entertainment, Fire Brigades, Public Charities' Funds, Public Service.	Correspondence with Commonwealth, State, and other Governments. Business relating to sub-departments. Chamber of Manufactures, Civil Service exams., fire brigades, Government Gazette, public charities, Royal commissions, State printing, public houses, hospitals, public health, law and order, prisons, places of public entertainment.
<b>2. Treasury—</b> (a) Land and Income Tax Department. (b) Stamp Duty Department. (c) Motor Vehicles Branch. (d) Agent-General in London. (e) Produce Department.	Seed Wheat, Unclaimed Moneys, Pawnbrokers, Appraisers, Auctioneers, Hawkers, Taxation, Stamp Duty, Motor Vehicles.	Banking, finance and taxation generally, Imperial and other Government pensions, Public Service Superannuation Fund, licenses, produce export, correspondence with the Agent-General and with the Chamber of Commerce.
<b>3. Attorney-General—</b> (a) Law Officers. (b) Public Trustees. (c) Curator of Convicts' Estates. (d) Supreme Ct. (e) Registrars of Industrial Soc., etc., in Admiralty, of Probates, of Companies, and of Building Soc. (f) Insolvency Court. (g) Police and Local Courts. (h) Licensing Courts. (i) Registrar-General of Deeds. (j) Coroners. (k) Electoral Department. (l) Local Option. (m) Town Planning.	Courts of Justice, Administration and Probate, Public Trustee, Legal Practitioners, Succession Duties, Companies, Insolvency, Police, Real Property, Bills of Sale, Deposit of Deeds, Coroners, Electoral, Licensing Acts, Ancient Lights, Declarations and Attestation Acts.	Responsible for Government Parliamentary bills and administration of Local Option and Electoral Acts. Deals with issue of summonses and warrants and with preparing informations and plaints, licenses, franchise, appeals from courts, town planning.

## SOUTH AUSTRALIA—(continued).

Departments, Sub-Departments, Branches, etc.	Principal Acts Administered.	Matters dealt with or under Control.
<b>4. Commissioner of Crown Lands and Immigration—</b> (a) Lands and Survey Department. (b) Local Government Department. (c) Photolithographic Department.	Crown Lands, Corporations, District Councils, Manufacturing Districts, Blocker's Loans, Animal Protection, Game, National Park, Noxious Weeds, Roads Pastoral, Vermin, Licensed Surveyors, Weights and Measures, Botanic Garden, Advances to Settlers, Immigration, Impounding Travelling Stock, Waybills.	Matters affecting municipal corporations and district councils respecting the Acts under which they are constituted, payment of main road grants, subsidies, and license fees, all matters affecting Crown lands, roads and bridges, immigration, surveys, botanic gardens, animals and birds.
<b>5. Public Works—</b> (a) Engineer-in-Chief's Department. (b) Hydraulic Engineer's Department. (c) Works and Buildings (d) Labour Exchange. (e) Supply and Tender Board Department. (f) Aborigines Department.	South-eastern Drainage, Water Conservation, Waterworks, Sewers, Murray River Works, Adelaide Cemetery and Cremation, Renmark Irrigation Trust, Municipal Tramways Trust.	Water conservation works and artesian boring, construction of roads outside district councils, town and country waterworks, weirs, locks, and other improvements River Murray, State Government buildings and Adelaide cemetery, aborigines, labour exchange.
<b>6. Mines—</b> (a) Department of Mines. (b) Geological Survey.	Mining, Gold Dredging, Mining on Private Property, Gold Buyers.	Administration of Mining Acts, records and statistics, geological reports, State batteries and cyanide works, metallurgical laboratories, inspection of mines and quarries, diamond drilling.
<b>7. Minister of Railways—</b>	Railway Administration and Construction.	Railways.
<b>8. Education—</b> (a) Education Department (b) Observatory. (c) Adelaide University. (d) Adelaide School of Mines. (e) Country Schools of Mines. (f) Public Library, Museum, and Art Gallery. (g) Institutes Association.	Education, Adelaide University, Degrees in Surgery, University Site, Public Library, Museum and Art Gallery, School of Mines, Country Institutes.	Education generally, including primary, secondary, technical, and university, institutes, astronomical (but not meteorological) work.
<b>9. Department of Industry—</b> (a) Chemistry Dept. (b) Factories' Dept. (c) Fisheries' Dept. (d) Women's Employment Bureau. (e) Chief Inspector of Steam Boilers.	Industrial Arbitration, Factories, Early Closing, Scaffolding, Lifts, Shearers' Accommodation, Fisheries, Bird Protection, Registry Offices, Steam Boilers and Engine Drivers, Workmen's Compensation Act, Apprentices' (War Relief) Act, Inflammable Oils Act.	Factories, shops, early closing, industrial disputes, explosives, fish industry, industrial research, women's employment bureau, steam boilers and engine drivers.
<b>10. Agriculture and Irrigation—</b> (a) Department of Agriculture. (b) Advisory Board of Agriculture. (c) Agricultural College. (d) Dairy Department. (e) Poultry Department. (f) Horticultural Department. (g) Stock and Brands. (h) Irrigation. (i) Experimental Farms. (j) Superintendent of Soldier Settlements.	Bush Fires, Fertilizers, Fisheries, Vine, Fruit and Vegetable Protection, Commerce, Hay and Chaff, Insecticides, Phylloxera, Irrigation, Stock Diseases, Brands, Returned Soldiers' Settlement, Wheat Harvest, Sale of Fruit, Hide, Skin and Wool Dealers, Discharged Soldiers' Settlements, Chaff, Hay and Fruit, Sale of Fruit.	Scientific farming, agricultural colleges and experimental farms, agricultural instruction, handling, shipping and cold storage of produce, inspection of stock, registration of stock brands, reclamation and irrigation of land.
<b>11. Marine—</b> (a) Harbours Board. (b) Marine Board; (c) Life Saving Dept.	Harbour, Marine, and Navigation Acts.	Wharves, harbours, jetties, lighthouses, dredging, life saving.

## WESTERN AUSTRALIA.—ADMINISTRATIVE GOVERNMENT, 1918.

Departments, Sub-Departments, Branches, etc.	Principal Acts Administered.	Matters dealt with or under Control.
<p>1. Premier— (a) Premier's Office. (b) Executive Council. (c) London Agency. (d) Public Service Commissioner. (e) Government Motor Cars.</p>	Public Service, Postponement of Debts.	State Governor's establishment, Executive Council, London agency, justices of the peace, Government motor cars, State functions and celebrations.
<p>2. Colonial Secretary— (a) Aborigines. (b) Fisheries. (c) Friendly Societies and Industrial Arbitration. (d) Gaols. (e) Government Gardens. (f) Harbour and Light. (g) Immigration and General Information. (h) Lunacy. (i) Medical, Public, Health Factories, and Early Closing. (j) Observatory. (k) Police. (l) State Children, Interstate Destitute Persons and Outdoor Relief. (m) State Labour Bureau. (n) Registry and Statistical. (o) State Hotels and Tourists. (p) State Steamship Service.</p>	<p>Aborigines, Bread, Bank Holidays, Benefit Building Societies, Protection of Property, Cooperative and Provident Societies, Dentists, Fire Brigades, Early Closing, Friendly Societies, Fisheries, Factories, Footwear Regulation, Game, Harbours and Rivers, Hospitals, Health, Industrial Arbitration, Interstate Destitute Persons Relief, Lunacy, Inebriates, Marine Stores, Medical, Navigation, Newspaper Libel, Pearl-ling, Poorhouses Discipline, Prisons, Police, Pharmacy and Poisons, Registration of Births, Deaths and Marriages, Legitimation, Racing Clubs, Royal Commissioners' Powers, Statistical State Children, Shearers' Accommodation, Seamen, Shipping, Trespass, Trades Unions, Truck, University Endowment, Vaccination, Whaling, Workers' Compensation, Workmen's Wages.</p>	<p>Consuls, fisheries, aborigines, actuarial, industrial arbitration, friendly and other societies, trades unions, prisons, Government gardens, lighthouses, harbours and rivers, immigration, and general information, hospitals, hospitals for insane, early closing, sanitation, factories, astronomical, police, poor relief, State children, infant life protection, labour bureau, births, marriages and deaths, statistics, children's courts, old men's home, old women's home, inebriates' homes, Sunday entertainments, ferries, State steamships, State dairy farm, State hotels and inspection of liquors, pearling, oyster fisheries, game, Rottnest Island, tourists, public health, midwives' registration, meat and dairies inspection, school medical inspection, jetties, navigation, port lighthouses, workers' compensation.</p>
<p>3. Treasury— (a) Treasury. (b) Savings Bank. (c) Government Stores. (d) Workers' Home Board. (e) Lithography. (f) Printing. (g) Audit. (h) Taxation.</p>	<p>Auctioneers, Wines, Beer and Spirits Sale, Gun Licensing, Govt. Savings Bank, Workers' Homes, Pensions, Audit, Sale of Government Properties, General Loan and Inscribed Stock, Treasury Bills, Treasury Bonds, Deficiency, Land and Income Tax, Stamp Dividend Duties, Totalisator Duty, Totalisator Regulation.</p>	<p>Finance generally, general stores, savings bank, pensions, public accounts, licences, stamps, taxation, audit, printing and lithography, workers' homes.</p>
<p>4. Attorney-General— (a) Crown Law Offices. (b) Supreme Court. (c) Stipendiary Magistrates. (d) Land Titles Office. (e) Electoral Office. (f) Official Receiver. (g) Curator of Interstate Estates. (h) Sheriff.</p>	<p>Administration of Justice, Bankruptcy, Bills of Sale, Building Societies, Corporations, Companies, Conveyancing, Divorce, Death Duties, Extradition, Electoral, Firms' Registration, Interstate Estates, Life Assurance, Lunacy Estates, Libel, Licensing, Real Property, Truck Act, Transfer of Land, Workers' Compensation, Workmen's Wages, Usury, etc.</p>	<p>Criminal and civil law, conveyancing, parliamentary drafting, sheriffs, bankruptcy, intestacy, licensing, petty debts, petty sessions and police courts, land titles and registration of deeds and leases, elections, supreme court, registration of companies, newspapers, corporations, extradition, sheriff.</p>
<p>5. Public Works— (a) Administrative and State Industries. (b) Engineering Division. (c) Architectural Division. (d) Metropolitan Water Supply.</p>	<p>Public Works, Tramways, Railways (Special), Electric Light, Municipal Corporations, Roads, Dog, and Cart and Carriage, Metropolitan Water Supply, Sewerage and Drainage.</p>	<p>Public buildings and works, abattoirs, freezing and cold storage works, railway and tramway construction, municipalities, roads and bridges, State saw mills and brickworks, implement and engineering works, quarries, erection of wheat and flour storage sheds and silos.</p>
<p>6. Water Supply, Sewerage and Drainage in— (a) Goldfields. (b) Agricultural, and (c) North-West Divisions.</p>	<p>Goldfields Water Supply, Water Boards, Land Drainage, Rights in Water and Irrigation.</p>	<p>All State hydraulic, sewerage, land drainage and irrigation undertakings.</p>

## WESTERN AUSTRALIA—(continued).

Departments, Sub-Departments, Branches, etc.	Principal Acts Administered.	Matters dealt with or under Control.
<b>7. Agricultural—</b> (a) Department of Agriculture. (b) Commissioner Wheat Belt. (c) Chief Inspector, Fruit Industries. (d) Stock, Brands, Poultry, and Veterinary Inspection. (e) Rabbit and Vermin Board. (f) Markets, Refrigerating Works, Saleyards and Abattoirs. (g) Botanist, Pathologist, and Entomologist. (h) Traction Engine Clearing. (i) Wyndham Freezing Works.	Rabbit, Stock Diseases, Scab, Brands, Plant Diseases, Noxious Weeds, Fertilizers and Feeding Stuffs, Contagious Diseases in Bees, Droving, Abattoirs, Vermin, Veterinary Surgeons, Destructive Birds and Animals, Cattle Trespass, Fencing and Impounding, Live Stock and Frozen Meat, Quarantine and Commerce.	Agricultural, horticultural, dairying and pastoral pursuits generally, abattoirs and refrigerating works, State markets, clearing by traction engines, encouragement of secondary industries, State farms and orchards, orchard and insect pests, Federal quarantine (fruit), veterinary inspection, meat canning.
<b>8. Industries—</b>	Agricultural Bank, Industries Assistance.	Assistance to settlers, industrial development, assistance to returned soldiers.
<b>9. Education—</b> (a) Primary Education. (b) Secondary Education. (c) Training College for Teachers. (d) Technical Education.	Education.	Education generally, including primary, secondary, continuation and technical schools, inspection of schools, training of teachers.
<b>10. Railways—</b>	Government Railways and Tramways, Electric Light and Power Agreement, and Government Electric Works.	Management, maintenance and control of Govt. railways and tramways, control of electric works.
<b>11. Mines—</b> (a) Explosives and Analytical. (b) Inspection of Machinery. (c) Mining Engineers. (d) Geological Survey. (e) State Batteries. (f) Woods and Forests. (g) School of Mines. (h) State Smelter.	Mining, Sluicing and Dredging for Gold, Explosives, Inspection of Machinery, Mines Regulation, Coal Mines, Mining Development, Timber Regulations.	Mining generally, State batteries and reduction plants, woods and forests.
<b>12. Lands—</b> Lands and Surveys.	Land, Cemeteries, Bush Fires, Parks, Reserves, Agricultural Lands Purchase, Native Flora and Fauna, Opening and Closing of Roads under Lands Act, Permanent Reserves, Licensed Surveyors.	All business in connection with holdings under the Land Acts, reserves, roads, land selection, district survey offices, land agencies.

## TASMANIA.—ADMINISTRATIVE GOVERNMENT, 1918.

<b>1. Premier—</b> (a) Governor's Establishment. (b) Premier's Dept. (c) Executive Council. (d) Agent-General.	...	Correspondence with State, Federal, Colonial, British, and Foreign Governments, with Agent-General and Governor, etc.
<b>2. Chief Secretary—</b> (a) Houses of Parliament. (b) Electoral. (c) Audit. (d) Statistical & Registration. (e) Inspection of Machinery. (f) Fisheries. (g) Public Buildings. (h) Charitable Institutions. (i) Boys' Training School. (j) Home for Invalids. (k) Neglected Children's Department. (l) Medical Institutions. (m) Hospitals. (n) Public Health. (o) Public Service Board. (p) Industrial Education.	Audit, Bank Holidays, Cemeteries, Registration of Births and Deaths, Botanical Gardens, Charitable Institutions, Electoral, Fire Brigades, Factories, Fisheries, Hospitals, Inebriates, Museum & Art Gallery, Pensions, Pharmacy, Public Health, Public Service, Wages Boards, Midwifery, Shops Closing, Workers' Compensation, Industrial, Education.	Charitable institutions, cemeteries, public health, electoral, franchise, fisheries, machinery, statistics, training & industrial schools, public service, explosives, wages boards.
<b>3. Treasury—</b> (a) Taxes. (b) Printing. (c) State Savings Bank. (d) Agricultural Bank. (e) Merchant Ships' Officers' Exam. Board.	Suppression of Public Betting, Licensing, Stamp Duties, Auction, Pawnbrokers, Public Debts, Taxation, Assessment, Savings Bank, State Advances, Merchant Ships' Officers' Examination.	Finance generally, collection of internal revenue and of stamp duties, Government printing.

## TASMANIA—(Continued).

Department, Sub-Department, Branches, etc.	Principal Acts Administered.	Matters dealt with or under Control.
4. Mines—	Mining, Mining Companies, Mining Companies (Foreign), Magazine & Explosives.	All matters arising under Acts dealing with mining, registration of mining companies, magazines and explosives.
5. Lands— (a) Lands Branch Office, Launceston. (b) Agricultural and Stock Department.	Crown Lands, Closer Settlement, Game Protection, Stock, Diseased Animals, Rabbits Destruction, Vegetation Diseases.	Crown lands and surveys, agriculture and stock.
6. Public Works—	Public Works, Local Government.	Construction and control of public works, including railways.
7. Attorney-General— (a) Supreme Court. (b) Lands Titles. (c) Sheriff. (d) Magistracy. (e) Police, (f) Railways.	Probate, Stamp Duties, Foreign Companies, Real Property, Prisons, Bankruptcy, Local Courts, Infant Life Protection, Motor Traffic, Police, Railway Management, Newspapers.	Courts of law, gaols, justices of the peace and coroners, lands titles, police, registration of deeds, Supreme Court & Judges, Railways.
8. Education—	Education.	Primary & technical education, University of Tasmania.

## SECTION XXVI.

## LOCAL GOVERNMENT.

## § 1. Introduction.

1. **Early History of Local Government.**—In previous issues of this book, a description was given of the systems of Local Government and their development in the several States of the Commonwealth, and at the same time a comparison was made between the Australian and Continental systems. The early history of Local Government in Australia was also dealt with. Owing, however, to considerations of space, these matters have been omitted from the present volume, and the reader is referred to Year Book No. 5, pages 972 to 975.

## § 2. Local Government Systems.

1. **New South Wales.**—(i.) *Development of Local Government.* The history of Local Government in New South Wales has been given in previous issues of this book (see No. 6, page 966). It is not intended to repeat the information in this issue.

(ii.) *Present System of Local Government.* The law relating to local government in New South Wales is now contained in the Acts of 1906, 1907, 1908 and 1914. Practically the whole of the State, with the exception of the Western Division, has been brought under the operation of these Acts.

(a) *Areas Incorporated.* Prior to the year 1907 the total area incorporated formed a very small part of the whole area of the State, as may be seen in the following statement:—

## AREAS INCORPORATED IN NEW SOUTH WALES, 1860 to 1906.

Year	...	...	1860.	1870.	1880.	1890.	1900.	1906.
Area incorporated—sq. miles	...	...	409	649	1,482	2,387	2,763	2,830

*Total area of State (exclusive of Lord Howe Island), 310,367 square miles.*

The areas incorporated in 1906 in each of the three territorial divisions of the State were as follows:—

## NEW SOUTH WALES.—DISTRIBUTION OF INCORPORATED AREAS, 1906.

Division.			Incorporated Area.	Unincorporated Area.	Total Area.
Eastern	...	Sq. miles	1,977	93,742	95,719
Central	...	"	571	88,579	89,150
Western	...	"	282	125,216	125,498
Total			2,830	307,537	*310,367

\* Total area of State, exclusive of Lord Howe Island, the area of which is 5 square miles.

The total area incorporated under the Local Government Act 1906 to the end of the year 1916 was 183,521 square miles, of which 180,655 square miles were comprised within shires and 2866 within municipalities. The areas incorporated comprise the whole of the eastern and central divisions of the State, with the exception of Lord Howe Island, the islands in Port Jackson, and the quarantine station at Port Jackson.

(b) *General.* The above Act came into operation on the 1st January, 1907; it provided for the continuation of existing shires and municipalities, for the creation of new ones, and for their reconstitution by uniting, dividing, altering, or converting areas.



Each shire is divided into three ridings, and each municipality may be divided into wards by petition of the council or a majority of the ratepayers to the Governor. The councils consist, in the case of shires, of either six or nine councillors, and in the case of municipalities, of from six to fifteen aldermen. A summary of the functions of councils, their powers and duties, together with a detailed statement of rates, ratable property, and endowment, will be found in previous issues of the Year Book. (See Year Book No. 5, pages 977 to 979.)

(iii.) *Shires*.—The total area of the 136 shires constituted under the new system is 180,655 square miles, and the population on the 31st December, 1916, was 646,320.

The shires vary in area from 36 square miles in the case of Ku-ring-gai, immediately north of the metropolis, to 5730 square miles in the case of Lachlan in the Condobolin district.

(a) *Valuation and Rates Levied*. The unimproved capital value of the shires in 1916 was £105,697,791, as against £104,745,633 in the preceding year. It is not possible to give the improved capital value or the assessed annual value, as the shires are not compelled to make these valuations, and in many cases do not make them. The total amount of all rates levied was £651,437.

(b) *Revenue*. The principal heads of revenue for the last five years are shewn in the following table:—

**NEW SOUTH WALES.—INCOME OF SHIRES, 1912 to 1916.**

Particulars.*	1912.	1913.	1914.	1915.	1916.
<i>General Fund—</i>	£	£	£	£	£
General rates ...	517,025	561,378	608,009	610,407	633,973
Government endowment...	372,952	134,635	146,077	163,211	143,259
Public works ...	45,152	62,453	197,754	192,319	205,277
Health administration ...	4,886	4,864	4,889	4,620	4,087
Public services ...	9,232	10,305	10,069	9,711	11,162
Shire property ...	8,768	10,159	13,738	12,512	12,449
Miscellaneous ...	5,648	6,814	6,742	7,613	7,507
<i>Special and Local Funds</i> ...	35,835	45,903	57,714	65,293	75,309
Total revenue...	999,498	836,511	1,044,992	1,065,686	1,093,023

\* The receipts for Public Works, Health Administration, Public Service, etc., include Government grants during 1916 amounting to £188,175.

(c) *Expenditure*. The following statement shews the expenditure of shires during the years 1912 to 1916 inclusive:—

**NEW SOUTH WALES.—EXPENDITURE OF SHIRES, 1912 to 1916.**

Particulars.	1912.	1913.	1914.	1915.	1916.
<i>General Fund—</i>	£	£	£	£	£
Administrative expenses ...	83,721	91,450	95,760	87,527	100,224
Public works ...	773,479	707,923	801,542	813,400	843,803
Health administration ...	7,199	7,699	8,064	8,049	8,513
Public services ...	15,809	14,751	14,757	17,935	15,229
Shire property ...	10,419	11,251	15,277	14,644	14,969
Miscellaneous ...	8,430	9,975	9,275	9,855	17,510
<i>Special Local and Loan Funds</i>	34,268	43,041	51,796	67,025	78,649
Total expenditure...	933,325	886,090	996,471	1,018,435	1,078,897

(d) *Assets and Liabilities.* The financial position of the shires at the end of the year 1916 was strong, as there was an excess of assets of £437,011. The following table gives particulars of assets and liabilities as at the 31st December, 1916 :—

NEW SOUTH WALES.—ASSETS AND LIABILITIES OF SHIRES, 1916.

Assets.			Liabilities.		
<i>General Fund—</i>			<i>General Fund—</i>		
Outstanding rates	...	£52,647	Temporary loans	...	£45,895
Stores and materials	...	15,606	Sundry creditors	...	51,931
Bank balance	...	134,184	Due on contracts	...	230
Sundry debtors	...	13,761	Due to trust fund	...	172
Land	...	18,536	Other	...	104
Buildings	...	92,195	<i>Special, Local and Loan Funds</i>		54,445
Plant and property*	...	174,497			
Furniture	...	17,926	Total	...	†£152,777
Other	...	4,211	Excess of assets	...	437,011
<i>Special, Local and Loan Funds</i>		66,225			
Total	...	£589,788	Total	...	£589,788

\* Including saleyards, pounds, baths, public watering-places, ferries, wharves, etc.

† Includes £78,603 for outstanding loans.

(iv.) *Municipalities.* Including the City of Sydney there were 185 municipalities in New South Wales at the end of 1916; of these, forty were in the suburbs of Sydney and eleven in the district of Newcastle and suburbs. Since the 1st January, 1908, under the Local Government Act 1906, suburban and country municipalities must levy a general rate on the unimproved capital value of all ratable land, and may levy additional general, special, local, or loan rates on either the unimproved or improved capital value. Municipal rates, until the year 1915, were charged on the annual value in the City of Sydney, and an additional rate was also levied on the unimproved capital value, but from 1916 the rates are levied on the unimproved capital value only. The only rates based solely on the assessed annual value are those charged by the Metropolitan and Hunter Water Supply and Sewerage Boards.

(a) *Capital Value, Area, Population, and Rates Levied.* The following table shows the improved capital value, the area, population, number of buildings, and amount of rates levied in municipalities for the years 1901 and 1912 to 1916 :—

NEW SOUTH WALES.—MUNICIPALITIES, IMPROVED CAPITAL VALUE, AREA, POPULATION, NUMBER OF BUILDINGS, AND TOTAL RATES LEVIED, 1901 and 1912-16.

Year ended 31st Dec.*	Sydney and Suburbs.					Country.				
	Improved Capital Value.	Area.	Population.	Number of Dwellings.	Total Rates Levied.	Improved Capital Value.	Area.	Population.	Number of Dwellings.	Total Rates Levied.
	£	Acres.	No.	No.	£	£	Acres.	No.	No.	£
1901 ...	88,118,600	91,220	†487,900	94,907	277,457	36,429,600	1,732,302	371,330	73,862	127,564
1912 ...	124,875,964	95,259	683,780	§	770,879	48,314,203	1,826,795	444,190	§	373,765
1913 ...	137,795,263	95,259	713,260	§	880,908	50,451,471	1,769,155	456,050	§	401,594
1914 ...	158,764,693	95,259	739,210	§	1,038,224	55,883,063	1,769,155	457,150	§	450,140
1915 ...	169,778,544	95,259	748,940	§	1,076,885	57,949,558	1,769,155	456,000	§	454,511
1916 ...	176,659,505	95,259	750,260	§	1,153,987	59,422,910	1,742,275	446,800	§	485,104

\* Prior to 1908 the municipal year ended on the first Monday in February, since when the municipal year closes on 31st December.

† Census, March, 1901.

§ Not available.

The following table gives a comparison of the unimproved and improved values for the years 1912 to 1916 inclusive :—

**NEW SOUTH WALES.—MUNICIPALITIES, UNIMPROVED AND IMPROVED  
CAPITAL VALUES, 1912 to 1916.**

Year.	Sydney.	Suburbs.	Metropolis.	Country.	Total.
UNIMPROVED VALUE.					
	£	£	£	£	£
1912 ...	23,988,480	27,193,577	51,182,057	20,352,473	71,534,530
1913 ...	23,837,157	28,240,971	52,078,128	20,807,126	72,885,254
1914 ...	27,395,826	31,979,353	59,375,179	22,573,671	81,948,850
1915 ...	27,226,283	33,403,223	60,629,506	22,843,195	83,472,701
1916 ...	31,168,904	34,719,417	65,888,321	23,378,626	89,266,947
IMPROVED VALUE.					
1912 ...	57,395,288	67,480,676	124,875,964	48,814,203	173,690,167
1913 ...	64,080,440	73,714,823	137,795,263	50,451,471	188,246,734
1914 ...	75,786,580	82,978,113	158,764,693	55,682,063	214,446,756
1915 ...	78,580,300	91,198,244	169,778,544	57,949,658	227,728,102
1916 ...	80,264,720	96,394,785	176,659,505	59,422,910	236,082,415

(b) *Revenue.* The Local Government Act 1906 prescribed that there should be a general fund in each local government area (municipality and shire), also special funds for specified purposes. The regulations under the Act prescribed the system of accounts to be kept. This system differs materially from the old "cash" system of receipts (cash actually received) and disbursements (cash actually expended).

Prior to 1908 the municipal year ended on the first Monday in February; now it ends on the 31st December. In all statements of municipal accounts for the year 1908, therefore, the period referred to is from the 4th February to the 31st December, except in the City of Sydney, which does not come under the provisions of the Act of 1906 and where the accounts are kept for the calendar year. The first complete year for which financial particulars are available for the municipalities is the year 1909. Particulars of revenue for the year 1916 are given in the following table :—

**NEW SOUTH WALES.—MUNICIPALITIES, REVENUE, 1916.**

Particulars.	Sydney.	Suburbs.	Country.	Total.
	£	£	£	£
General fund ... ..	1,197,985†	724,638	480,451	1,205,089†
Trading accounts ... ..		...	148,327	148,327†
Special and local funds ... ..		59,089	300,321	359,410†
Loan funds ... ..		73,638	68,045	141,683†
Reserve and Renewals Account ... ..		5,464	30,104	35,568†
Gross revenue ... ..	1,197,985†	862,829	1,027,248	3,088,062
Deduct transfers* ... ..	...	44,773	47,280	92,053
Net revenue ... ..	1,197,985†	818,056	979,968	2,996,009

\* Transfers from various funds to loan funds for principal, interest, and capital expenditure.  
† The City of Sydney accounts were formerly kept on a cash basis, i.e., the actual receipts and disbursements were shown; but the figures since 1914 show total revenue and expenditure for the year. Items of revenue and expenditure for the City of Sydney cannot be allocated to the different headings shown for municipalities. ‡ Exclusive of Sydney.

(c) *Expenditure.* Reference has already been made to the system of accounts prescribed by the Local Government Act 1906 (see paragraph (b) hereof). The following table gives particulars of expenditure of municipalities for the year 1916 :—

NEW SOUTH WALES.—MUNICIPALITIES, EXPENDITURE, 1916.

Particulars.	Sydney.	Suburbs.	Country.	Total.
	£	£	£	£
General fund ... ..	1,087,273†	704,855	476,749	1,181,604†
Trading accounts ... ..		...	114,243	114,243†
Special and local funds ... ..		57,654	280,542	338,196†
Loan funds ... ..		113,941	53,555	167,496†
Reserve and Renewals Account ... ..		662	8,531	9,193†
Gross expenditure ... ..	1,087,273†	877,112	933,620	2,898,005
Deduct transfers* ... ..	...	44,773	47,280	92,053
Net expenditure ... ..	1,087,273†	832,339	886,340	2,805,952

\* Transfers from various funds for principal and interest on loans. † See note † to preceding table. ‡ See note ‡ to preceding table.

(d) *Assets and Liabilities.* The financial position of the municipalities as at the 31st December, 1916, is shewn by the following statement of assets and liabilities of the various funds :—

NEW SOUTH WALES.—MUNICIPALITIES, ASSETS AND LIABILITIES, 1916.

Particulars.	Sydney.	Suburbs.	Country.	Total.
	£	£	£	£
<b>Assets—</b>				
General fund ... ..	10,005,232*	407,715	507,364	915,079†
Trading accounts ... ..		...	169,784	169,784†
Special and local funds... ..		38,845	1,572,196	1,611,041†
Loan funds ... ..		172,496	646,771	819,267†
Reserves and renewals account ... ..		4,802	22,778	27,580†
Total ... ..	10,005,232*	623,858	2,918,893	13,547,983
<b>Liabilities—</b>				
General fund ... ..	9,751,011*	180,721	94,636	275,357†
Trading accounts ... ..		...	87,115	87,115†
Special and local funds... ..		11,125	1,405,118	1,416,243†
Loan funds ... ..		869,408	676,370	1,545,778†
Reserves and renewals account ... ..		4,802	22,778	27,580†
Total ... ..	9,751,011*	1,066,056	2,286,017	13,103,084

\* See note † to last table on preceding page. † See note ‡ to last table on preceding page.

2. *Victoria.*—(i.) *Development of Local Government.* In Victoria there are now two types of municipal institutions, (a) boroughs, including cities and towns, and (b) shires, and although they are now dealt with by the same Act, their origin was distinct, and in the early days of their development they were provided for by independent enactments. Melbourne and Geelong, the latter of which was for many years the second largest town in the State, having been incorporated under special statutes prior to the establishment of a general system of local government, are not subject to the provisions of the Local Government Acts except in a few comparatively unimportant details. Melbourne was incorporated as a town in 1842, and as a city in 1847; Geelong was incorporated as a town in 1849, and proclaimed a city on 14th December, 1910.

The earlier history of legislation in Victoria relative to Local Government, more especially with reference to the institution of Road Districts, their displacement by Shires, and the constitution of Urban Municipal Districts and Boroughs, has been fully dealt with in previous issues. (See Year Book No. 5, p. 992.)

(ii.) *Present System of Local Government.* Local government is now administered under the Act of 1903 throughout the whole of the State, with the exception of French Island.

(a) *Constitution of Municipalities.* Provision is made for the continuation of municipalities established under previous Acts and for the constitution of new ones.

Definitions of shires, boroughs, and townships have been given in previous issues of this book (see Year Book No. 6, page 978), together with the conditions necessary for their constitution.

(b) *Municipal Councils, etc.* Considerations of space prevent more than a passing reference to the following subjects, which were dealt with in previous issues of this book:—The constitution of municipal councils, their functions and powers, including the power of raising loans, the qualifications necessary for the exercise of the municipal franchise, and the definition of ratable and unratable property. (See Year Book No. 5, pp. 994 to 996.)

(c) *Endowment.* The legislation dealing with municipal endowment prior to 1907 is referred to in previous issues. (See Year Book No. 5, p. 996.) In 1907, under the Municipal Endowment and Reclassification of Shires Act of that year, a new classification was adopted under which the amount of the endowment is to be allocated. In addition to the endowment of £50,000, the municipalities received from the Government during the financial year 1916-17 a sum of £71,529 out of the Licensing Act Fund as the equivalent for (a) fees for licenses, (b) fees for the registration of brewers and spirit merchants, and (c) fines, penalties, and forfeitures incurred under the Licensing Act 1915. Under the Act of 1907 the endowment is payable in equal portions in March and September of each year. No city or town is entitled to receive any part of the endowment. The distribution amongst the boroughs and shires is based on the amount of general and extra rates received in the twelve months ending on the preceding 30th September according to the following scale:—To every borough or 1st class shire, 3s. in the £; to every 2nd class shire, 5s. in the £; to every 3rd class shire, 6s. in the £; to every 4th class shire, 8s. in the £; to every 5th class shire, 10s. in the £; to every 6th class shire, 12s. in the £.

For the three financial years commencing the 1st July, 1907, however, the amounts were definitely fixed by Act No. 2129, and for the seven succeeding financial years by Acts No. 2267, 2334, 2407, 2475, 2562, 2805 and 2872 respectively.

(iii.) *Boroughs and Shires.—Number, Population, and Value of Ratable Property.*—The following table shews the number of cities, towns, boroughs, and shires, their estimated population, the number of ratepayers and dwellings, and the value of ratable property for the years 1901 and 1913-17 inclusive:—

## VICTORIA.—PARTICULARS OF MUNICIPALITIES, 1901 and 1913-17.

Year ending 30th June.	Number of Municipa- lities.	Estimated Population.	Number of Ratepayers (both sexes).	Estimated Number of Dwellings.	Estimated Value of Rateable Property.	
					Total.	Annual.
CITIES, TOWNS, AND BOROUGHES.						
1901	58	627,237	153,783	130,358	£ 67,302,423	£ 4,765,632
1913	61	777,696	200,272	160,246*	127,743,501	7,270,972
1914	61	802,479	203,773	178,195	137,649,219	7,790,654
1915	61	825,078	209,276	185,330	147,205,224	8,218,040
1916	52	824,170	208,759	186,740	149,235,137	8,335,553
1917	51	829,368	213,520	188,528	154,105,571	8,587,302
SHIRES.						
1901	150	571,683	159,128	122,645	£ 106,839,331	£ 5,771,865
1913	147	583,909	173,271	125,879*	160,128,933	8,152,473
1914	147	600,431	175,637	137,187	164,268,467	8,255,505
1915	147	608,828	181,480	138,462	167,405,523	8,517,938
1916	141	617,587	184,374	141,893	169,724,979	8,606,509
1917	139	618,896	187,894	142,511	172,309,539	8,732,116

\* Census figures.

(iv.) *Municipal Assets and Liabilities.*—The assets of municipalities may be classified under three heads—(a) the municipal fund, (b) the loan fund, and (c) property; the liabilities under two heads—(a) the municipal fund, and (b) the loan fund. The following table shews the amount of municipal assets and liabilities for the years 1901 and 1912 to 1916:—

## VICTORIA.—MUNICIPAL ASSETS AND LIABILITIES, 1901 and 1912-16.

Items.	1901.	1912.	1913.	1914.	1915.	1916.
ASSETS.						
MUNICIPAL FUND—	£	£	£	£	£	£
Uncollected rates ... ..	187,205	111,405	108,686	120,200	147,886	146,491
Other assets ... ..	122,581	522,911	582,451	652,530	760,685	392,876
LOAN FUND—						
(a) Sinking funds—						
Amount at credit ... ..	675,310	896,185	924,952	878,322	839,951	792,445
Arrears due ... ..	1,391	1,759	438	1,327	1,826	834
(b) Unexpended balances ... ..	394,136	237,202	167,952	351,923	378,278	209,363
PROPERTY—						
Buildings, markets, etc. ... ..	2,507,441	3,365,638	3,534,691	3,799,038	3,863,556	3,750,947
Waterworks ... ..	197,875	182,835	184,842	180,485	175,267	177,050
Gasworks ... ..	63,732	86,872	96,933	103,435	99,107	105,124
Total ... ..	4,149,471	5,404,807	5,600,975	6,087,260	6,266,056	5,575,130
LIABILITIES.						
MUNICIPAL FUND—	£	£	£	£	£	£
Arrears due sinking funds ... ..	1,021	1,759	438	1,327	1,326	834
Overdue interest ... ..	9,413	15,619	18,005	19,771	13,776	14,456
Bank overdrafts ... ..	157,046	234,154	201,142	206,694	213,330	252,130
Temporary Government advances ... ..	20,901	...	...	...	...	...
Other liabilities ... ..	91,396	288,368	364,287	356,884	410,576	221,183
LOAN FUNDS—						
Loans outstanding ... ..	4,253,304	5,011,950	5,259,138	5,617,056	5,739,084	5,869,260
Due on loan contracts ... ..	52,826	102,135	128,051	69,181	237,765	15,888
Due on current contracts ... ..	51,134	73,768	74,770	74,451	71,729	73,005
Total ... ..	4,637,041	5,727,753	6,045,831	6,345,364	6,687,586	6,446,756

(v.) *Revenue and Expenditure of Municipalities.* The following table shows the revenue from various sources, and the expenditure under various heads, of municipalities during the years 1901 and 1912 to 1916 :—

**VICTORIA.—REVENUE AND EXPENDITURE OF MUNICIPALITIES, 1901 and 1912-16.**

Items.	1901.	1912.	1913.	1914.	1915.	1916.
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**SOURCES OF REVENUE.**

	£	£	£	£	£	£
Taxation ... { Rates ... ..	722,346	1,103,210	1,199,874	1,251,649	1,277,063	1,346,439
... { Licenses ... ..	104,499	102,297	103,528	108,106	104,634	105,772
... { Dog fees ... ..	14,965	20,438	21,483	21,907	20,158	20,528
... { Market and weighbridge dues ... ..	49,623	74,029	71,937	70,690	63,646	63,812
Government endowments and grants...	175,972	161,513	160,949	144,374	140,545	74,372
Contributions for streets, etc. ....	24,999	64,646	59,172	63,260	52,472	52,045
Sanitary charges ... ..	48,253	74,058	80,194	83,982	85,971	91,125
Rents ... ..	54,117	81,725	78,016	76,803	72,133	59,006
Other sources ... ..	89,210	263,600	324,496	354,427	388,850	441,128
Total ... ..	1,283,984	1,945,516	2,099,649	2,175,028	2,205,472	2,254,227

**HEADS OF EXPENDITURE.**

	£	£	£	£	£	£
Salaries, etc. ... ..	139,270	176,489	167,180	192,066	199,872	206,353
Sanitary work, street cleaning, etc. ...	132,542	198,006	203,757	206,271	225,919	236,766
Lighting ... ..	86,059	84,410	87,395	89,926	93,381	95,420
Fire brigades' contributions ... ..	16,769	25,946	27,101	28,361	30,277	32,086
Public works { Construction ... ..	244,315	335,717	339,158	315,480	274,593	238,773
... { Maintenance ... ..	345,334	736,457	753,083	814,459	811,608	847,505
Formation of private streets, etc. ....	23,350	66,735	56,600	70,465	62,012	68,024
Redemption of loans ... ..	27,745	61,782	70,506	80,576	92,738	101,461
Interest on loans ... ..	197,810	217,933	224,479	239,737	252,912	262,760
Charities ... ..	13,407	18,441	16,429	18,026	19,406	18,801
Other expenditure ... ..	103,403	129,190	126,376	151,613	174,945	180,018
Total ... ..	1,330,004	2,051,106	2,092,064	2,206,980	2,237,663	2,287,967

3. *Queensland.—(i.) Development of Local Government.* The existing scheme of local government in the State of Queensland is regulated by the provisions of the Local Authorities Act 1902, with its amendments in 1903, 1905 and 1910. A summary of these Acts and of the earlier legislation under which the system of local government in Queensland was inaugurated and developed, will be found in previous issues of this book (see Year Book No. 5, p. 1013).

(ii.) *Present System of Local Government.* The principal features of previous enactments as to the division of the State into local areas are retained in the Acts of 1902 and 1910, but such areas are in future to be of two classes—(a) towns and (b) shires. All municipalities formerly constituted as boroughs become towns, except Brisbane, Rockhampton, and Townsville, which are declared to be cities, and all shires and divisions become shires. The Governor-in-Council may, after giving notice in the *Gazette*, constitute, unite, divide, or abolish areas for the purpose of forming new areas, and may by proclamation constitute a town or city.

(iii.) *The Municipal Councils.* All local areas are governed by councils, the members of which are called aldermen in the case of cities and towns, and councillors in the case of shires. City and town councils are composed of either seven, nine, or eleven members, as declared by Order-in-Council, but if the local authority has wards, three members are assigned to each ward. Shire councils are composed of five, seven, or nine members, as declared by Order-in-Council, but if the shire is divided the number cannot be more than three for each division, and need not be the same for every division.

In previous Year Books allusion has been made at some length to the powers and duties of municipal councils, as well as to loans, valuation, rates and franchise. It is not proposed to repeat this information in the present issue.

(iv.) *Area, Population, Number of Dwellings, Rates, Assets and Liabilities of Cities, Towns and Shires.* The following table gives particulars of the area, population, number of inhabited tenements, assets and liabilities of cities and towns, and of shires, for each year from 1912 to 1916 :—

**QUEENSLAND.—PARTICULARS OF CITIES AND TOWNS AND SHIRES, 1912 to 1916.**

Year.	Municipality.	Area.	Population.	Number of Inhabited Dwellings.	Capital Value.	Assets.	Liabilities.		
							Government Loans.	Other.	Total.
		Square Miles.	No.	No.	£	£	£	£	£
1912	Cities and Towns	366	250,743	48,932	14,626,306	1,439,226	218,948	850,031	1,068,979
	Shires ...	669,528	393,173	83,021	40,365,614	426,694	141,288	84,894	226,182
	Total	669,894	643,915	131,953	54,991,920	1,865,920	360,236	934,925	1,295,161
1913	Cities and Towns	404	273,874	56,632	15,708,680	1,515,104	231,458	919,973	1,151,431
	Shires ...	669,490	399,305	84,805	41,272,641	467,182	203,109	93,410	296,519
	Total	669,894	673,179	141,437	56,981,321	1,982,286	434,567	1,013,383	1,447,950
1914	Cities and Towns	418	279,794	59,398	16,075,729	1,635,685	240,319	1,047,739	1,288,058
	Shires ...	669,476	411,093	87,144	44,596,193	455,476	159,359	97,454	256,813
	Total	669,894	690,887	146,542	60,671,922	2,091,161	399,678	1,145,193	1,544,871
1915	Cities and Towns	400	289,441	61,140	16,401,175	1,691,800	249,675	1,132,546	1,382,221
	Shires ...	669,494	428,007	89,919	45,622,388	499,390	178,634	127,618	306,252
	Total	669,894	717,448	151,059	62,023,563	2,191,190	428,309	1,260,164	1,688,473
1916	Cities and Towns	395	295,495	58,223	16,361,028	1,741,355	258,225	1,170,038	1,428,263
	Shires ...	669,499	420,377	91,297	45,919,033	552,750	190,752	133,352	324,104
	Total	669,894	715,873	149,520	62,280,061	2,294,105	448,977	1,303,390	1,752,367

(v.) *Receipts and Expenditure of Cities, Towns, and Shires.* The following table shows the receipts and expenditure (including loan moneys) of cities and towns and of shires, as well as the total receipts and expenditure of all municipalities, for each year from 1912 to 1916 :—



**QUEENSLAND.—REVENUE AND EXPENDITURE OF CITIES AND TOWNS  
AND SHIRES, 1912 to 1916.**

Year.	Municipality.	Receipts.				Expenditure.					
		From Govern- ment.	From Rates.	From other Sources.	Total.	On Public Works.	Loan Redemp- tion.	Office Expenses and Salaries.	Other Ex- penses.*	Total.	
1912	Cities and Towns	£ 32,591	£ 341,469	£ 83,827	£ 458,187	£ 365,439	£ 22,388	£ 30,542	£ 74,447	£ 492,816	
	Shires ...	30,969	322,049	54,201	407,219	311,580	12,020	51,612	56,771	431,983	
	Total ...	63,560	663,518	138,028	865,406	677,019	34,408	82,154	131,218	924,799	
1913	Cities and Towns	20,274	379,865	83,211	483,350	381,100	24,599	36,916	66,377	508,992	
	Shires ...	29,717	362,108	66,170	457,995	338,178	14,457	62,676	56,185	471,496	
	Total ...	49,991	741,973	149,381	941,345	719,278	39,056	99,592	122,562	980,488	
1914	Cities and Towns	31,725	421,329	92,203	545,257	495,067	21,210	38,766	89,707	644,750	
	Shires ...	41,413	394,373	64,760	500,546	387,021	16,496	64,789	48,876	512,183	
	Total ...	73,138	815,702	156,963	1,045,803	882,088	37,706	103,555	138,583	1,162,933	
1915	Cities and Towns	27,439	433,139	97,245	557,823	493,900	18,635	39,553	87,623	639,711	
	Shires ...	36,736	415,371	62,665	514,772	390,701	15,088	67,485	60,706	533,980	
	Total ...	64,175	848,510	159,910	1,072,595	884,601	33,723	107,038	148,329	1,173,691	
1916	Cities and Towns	29,541	460,252	86,139	575,932	478,962	20,221	50,388	87,970	637,541	
	Shires ...	23,680	443,843	63,351	530,884	366,007	13,587	82,240	71,902	533,736	
	Total ...	53,221	904,095	149,500	1,106,816	844,969	33,808	132,628	159,872	1,171,277	

\* Including interest on loans.

4. **South Australia.**—(i.) *Development of Local Government.* In the latter part of 1839 the first municipal law was passed in South Australia, which was thus the birthplace of municipal government in the Commonwealth. On the 31st October, 1840, the principles of self-government were practically adopted in Adelaide by the election of a mayor and council consisting of nineteen members, and the system has since been extended throughout the settled parts of the State by the formation of district councils and municipal corporations, which are the two types of local authorities now in existence.

(ii.) *District Councils.* The first District Councils Act was passed in 1858, was amended in 1862, and was further amended and consolidated by the District Councils Act of 1876, which provided for the continuation of existing districts and for the establishment of new ones by proclamation on the petition of the ratepayers. The revenue of the councils consisted of rents, profits, and income from lands vested in the councils or over which the councils had the control and management; fines and penalties enforced under the Act; fees for licenses; and general and special rates and loans. Provision was made for the election of councillors, their number, qualification, and retirement; for the election of auditors; the meetings, powers and functions of councils; the appointment of constables; revenue and expenditure; assessment of rates; and for making by-laws for various purposes. The Act of 1876 was amended from time to time, and was finally amended and consolidated by the Act which is now in force, namely, the District Councils Act 1887, which has in turn been amended in the years 1889, 1890, 1897, 1904, and 1905. These Acts were again amended by the Local Government Act 1910. The District Councils Consolidation Act 1914 embraces in one Act all the provisions of the above-mentioned Acts with emendations and additions. Subsidies of 25 per cent. on current rates collected are paid to corporations under Act 481 of 1899, and to district councils under Act 1182 of 1914. Votes are annually provided by Act of

Parliament of about £180,000, for payment to corporations and district councils as a contribution towards the cost of main roads throughout the State and other roads in newly-settled areas.

The powers and duties of district councils, together with the qualification necessary for councillors and electors, have been given *in extenso* in previous issues.

(iii.) *Municipalities.* Municipalities were first established under the Municipal Corporations Act of 1861, which, after providing for the extension of the powers and duties of the Corporation of the City of Adelaide, authorised the Governor, on petition of a majority of not less than two-thirds of the property-owners, to constitute any town, district, or place within the province, as a municipality. This Act and its amendments were consolidated in the Municipal Corporations Act 1880, which was amended from time to time until the year 1890, when it was repealed and its provisions consolidated by the existing Act, the Municipal Corporations Acts of 1890, which was in turn amended in 1893, 1896, and 1903. These Acts were again amended by the Local Government Act 1910.

A brief description of the Municipal Corporations Act of 1890, as well as the functions of municipal councils, will be found in previous issues of this book.

(iv.) *Finances of District Councils and Corporations.* The subjoined tables shew the amounts of assessments and the revenue and expenditure of district councils and of corporations for the financial years 1901 and 1913 to 1917; the figures given are exclusive of the Main Roads Funds, particulars as to which may be found in the section of this book on "Roads and Bridges."

**SOUTH AUSTRALIA.—ASSESSMENT, REVENUE AND EXPENDITURE OF LOCAL AUTHORITIES, 1901 and 1913-17 (EXCLUSIVE OF MAIN ROADS FUNDS).**

Year.*	Amount of Assessment (Annual Value).	Revenue.				Expenditure.	
		From Rates.	From Subsidies.	Other Sources.	Total.	On Public Works.	Total.
DISTRICT COUNCILS.							
	£	£	£	£	£	£	£
1901	1,412,507	63,321	15,225	51,919	130,465	65,406	128,499
1913	2,295,546	123,317	29,589	36,000	188,906	150,997	196,190
1914	2,435,655	132,277	38,397	32,878	203,552	145,282	196,408
1915	2,601,298	128,859	34,999	27,574	191,432	152,951	204,358
1916	2,662,066	148,895	34,487	27,135	210,517	136,380	189,582
1917	2,704,374	155,677	36,674	30,143	222,494	161,886	205,079
CORPORATIONS.							
	£	£	£	£	£	£	£
1901	1,177,850	87,289	9,733	49,342	146,364	55,533	146,091
1913	1,777,623	157,014	19,948	64,701	241,663	186,246	264,528
1914	1,896,273	168,041	23,821	63,026	254,888	176,952	266,202
1915	1,918,256	173,941	22,669	66,887	263,497	169,926	288,629
1916	2,006,802	176,870	23,448	67,136	267,454	160,516	270,929
1917	2,354,649	189,594	24,084	77,517	291,195	199,532	289,235

\* Up to and including the year 1903, the financial year for Corporations ended on the 31st December, but after that date ends on the 30th November. The financial year for district councils ends on the 30th June.

5. *Western Australia.*—(i.) *Types of Local Authorities.* In this State there are three forms of local authorities, namely :—(i.) Municipalities, (ii.) Road Districts, and (iii.) Local Boards of Health. The first Municipalities Act was passed in 1871, but only a few districts were incorporated under it. In 1895 a more comprehensive measure, the Municipal Institutions Act, was passed, and after being amended from time to time was consolidated by the Municipal Institutions Acts 1902 and 1904. In 1906 the most recent enactment, the Municipal Corporations Act, was passed, repealing and consolidating previous enactments. The whole area of the State outside incorporated municipalities

is divided into road districts, which are administered under the Roads Act 1911. In municipalities the councils act as Health Boards for the purpose of administering the Public Health Act, while outside municipalities local Boards of Health may be formed. In 1904, another local government measure, the Water Boards Act, was passed, under which Boards may be appointed for the control of waterworks, and rates may be levied for the purpose, the maximum being fixed at two shillings in the pound of ratable value.

(ii.) *Municipalities.* These are now regulated by the Municipal Corporations Act, which came into force on the 1st January, 1907. Provision is made for the continuation of existing municipalities, and the Governor is authorised to constitute new municipalities on petition signed by at least fifty property-holders in the district proposed to be incorporated; to unite adjoining municipalities on petition under their common seals; to sever any portion from a municipality on petition signed by a majority of the ratepayers, and to annex such portion to a contiguous municipality or road district.

(a) *Municipal Councils* consist of a mayor and councillors, the number of which depends upon the population of the municipality; if the population is less than 1000 there are six councillors, if from 1000 to 5000 there are nine councillors, and if the population is over 5000 there are twelve councillors, or three for each ward. Any male ratepayer of the age of twenty-one years, if a natural born or naturalised subject, is eligible for election as mayor or councillor, except ministers of religion, uncertificated bankrupts, prisoners, and certain other persons who may be disqualified on the ground of interest.

The duties and powers of municipal councils, the levying of rates, the qualification of voters and the classification of municipalities in Western Australia are fully referred to in previous issues. (Year Book No. 5, p. 1025.) Consideration of space prevents their inclusion in this edition.

(b) *Government Subsidies.* Amounts are granted annually to municipalities by way of subsidies on the amounts of rates collected. To entitle any council to participate in the allocation of the annual Parliamentary vote the council must have levied a minimum general rate of one shilling in the pound. The maximum subsidy payable to any one municipality is £3000, and the minimum is £75. Apart from the above, amounts voted by Parliament for special works in municipal districts are often entrusted to the councils for expenditure under approved conditions.

(iii.) *Area, Population, etc., of Municipalities.* Returns regarding the area, population, and valuation of municipalities are defective. They are shewn in the table hereunder:—

**WESTERN AUSTRALIA.—NUMBER, AREA, POPULATION, NUMBER OF DWELLINGS, AND VALUATION OF MUNICIPALITIES, 1901 and 1912-16.**

Year ended the 31st October.	Number of Muni- cipalities.	Area.	Population.	Dwellings.			Amount Payable in respect of Rates.
				Occupied.	Unoc- cupied.	Total.	
	No.	Acres.	No.	No.	No.	No.	£
1901 ... ..	42	71,721	*96,807†	†20,989	†967	†21,956	†
1912 ... ..	38	71,203	154,005	32,727	1,613	34,340	152,143
1913 ... ..	33	76,290	153,673	32,082	1,609	33,691	156,537
1914 ... ..	33	67,290	158,664	32,864	1,033	33,897	163,597
1915 ... ..	31	67,290	155,334	†	†	33,542	172,720
1916 ... ..	30	60,160	152,671	†	†	33,763	168,148

\* Census figures 1901. † Returns for thirty-nine municipalities only. ‡ Not available.

Complete particulars of improved or unimproved capital values are not available. In the year 1914 the capital value of ratable property in municipalities was £24,382,980; in 1915, £24,921,422; and in 1916, £26,817,864.

(iv.) *Revenue and Expenditure of Municipalities.* The following table gives particulars as to the revenue and expenditure of municipalities during the years 1901 and 1912: to 1916 :—

**WESTERN AUSTRALIA.—REVENUE AND EXPENDITURE OF MUNICIPALITIES,  
1901 and 1912-16.**

Year ended the 31st October	Revenue.				Expenditure.			
	From Rates.	From Govt. Grants.	From other Sources.	Total.	Works and Improvements.	Disbursements in respect of Loans.	Other Expenses.	Total.
	£	£	£	£	£	£	£	£
1901*	78,021	66,860	82,228	227,109	111,241	23,809	79,365	214,415
1912 ...	148,538	25,902	†834,991	1,009,431	78,576	104,475	735,907	918,958
1913 ...	153,966	19,382	347,323	520,671	159,445	104,091	286,619	550,155
1914 ...	153,686	13,142	479,797	646,625	223,098	115,924	304,823	643,845
1915 ...	170,675	10,309	465,810	646,794	190,739	129,103	382,784	702,626
1916 ...	166,617	9,462	437,258	613,337	120,411	127,559	370,390	618,360

\* Incomplete. † Including £255,000 loan, raised for purchase of electric light and gasworks..

(v.) *Assets and Liabilities of Municipalities.* The following table gives particulars respecting the assets and liabilities of municipalities at the end of each financial year: 1901 and 1912 to 1916 :—

**WESTERN AUSTRALIA.—ASSETS AND LIABILITIES OF MUNICIPALITIES,  
1901 and 1912-16.**

Year ended the 31st October	Assets.					Liabilities.		
	Balance in Hand.*	Value of Property owned by Municipalities.	Accrued Sinking Funds for Redemption of Loans.	Other Assets.	Total.	Outstanding Debts and Bonds.	Other Liabilities.	Total.
	£	£	£	£	£	£	£	£
1901† ...	37,259	214,984	42,311	13,432	307,986	321,000	19,762	340,762
1912 ...	108,162	1,154,568	221,477	53,032	1,537,239	1,459,282	50,814	1,510,096
1913 ...	78,066	1,188,068	249,376	66,271	1,581,781	1,468,780	55,887	1,524,667
1914 ...	78,790	1,231,891	283,855	90,768	1,675,304	1,606,966	76,647	1,683,613
1915 ...	16,732	1,280,912	268,911	103,409	1,669,964	1,690,074	74,392	1,764,466
1916 ...	17,233	1,438,246	286,485	86,158	1,828,122	1,813,426	68,897	1,882,323

\* Including bank balance, cash in hand, and fixed deposit. † Incomplete.

(vi.) *Road Districts.* The whole area of the State, outside incorporated municipalities, is divided into districts, the executive powers being vested in elective boards. These districts were originally formed solely for the purpose of controlling roads and bridges, but their powers and duties have been extended, so that at the present time they correspond closely to the shires of the other States of the Commonwealth. The enactments at present governing the administration of the Road Boards are the Roads Act 1911, the Parks and Reserves Act, the Cattle Trespassing Act, the Width of Tyres Act, the Cart and Carriage Licenses Act, and the Dog Act. The general powers and duties of the Boards are described in previous issues of this book.

(vii.) *Boards of Health.* These may be established under the Public Health Act 1911, which came into force on the 1st June, 1911, either within or outside of municipal boundaries. In the former case the Act is administered by the municipal councils, while in the latter case districts whose borders are continuous with road districts are administered by the local authorities. Those not continuous with road districts are administered by special Boards. The revenue of these Boards consists chiefly of moneys received:

from health rates and sanitary fees, and the largest item of expenditure is directly connected with the sanitary service. The following table shews particulars of the receipts and expenditure of the various Boards—both municipal and extra-municipal—during the years 1901 and 1912 to 1916 :—

**WESTERN AUSTRALIA.—RECEIPTS AND EXPENDITURE OF LOCAL HEALTH  
BOARDS, 1901 and 1912-16.**

Year ended the 31st October.	Revenue.			Expenditure.		
	From Public Health Rate.	From other Sources.	Total.	On Sanitary Services.	Other Expenses.	Total.
	£	£	£	£	£	£
1901 ... ..	15,230	17,477	32,707	18,787	12,992	31,779
1912a ... ..	f47,354	g60,525	107,879	69,703	40,552	110,255
1913b ... ..	f55,637	g62,931	118,568	72,286	41,874	114,160
1914c ... ..	f53,470	g61,801	115,271	62,831	47,484	110,315
1915d ... ..	f42,904	g61,393	104,297	70,963	36,890	107,853
1916e ... ..	f43,942	g59,441	103,383	68,749	29,971	98,720

a Exclusive of 15 inactive boards and 1 that sent in no return. b Exclusive of 3 boards which did not furnish returns and 14 boards which were inactive. c Exclusive of 13 inactive boards. d Exclusive of 13 inactive boards. e Exclusive of 8 inactive boards. f Including sanitary rates. g Including sanitary fees and charges.

On the 31st October, 1916, there were thirty Local Boards of Health within municipalities, and on the 30th June, 1916, sixty under control of Road Boards, and thirty-three extra-municipal Boards. In and after 1911, the financial year of Municipal Local Health Boards ended 31st October, and that of extra-municipal Boards, 30th June.

6. *Tasmania.*—(i.) *Development of Local Areas.* In this State the city of Hobart was incorporated by special Act in the year 1852, but it was not until 1858, when the Rural Municipalities Act was passed, that a general scheme for the establishment of municipalities was extended throughout the State. This Act was amended from time to time without, however, altering its chief characteristics. In 1869 a Roads Act was passed, and after being amended at various times was consolidated in 1884. Under the provisions of these Acts parts of the State were placed under the control of Town Boards and Road Trusts. The general rate under the Municipalities Act was limited to one shilling and sixpence in the pound of annual value, while special rates could be levied in rural districts, provided that the general and special rates together did not exceed one shilling and sixpence in the pound.

(ii.) *Acts now in Force.* In 1906 the whole of the Acts dealing with local authorities were amended and consolidated by the Local Government Act of that year. The whole State, with the exception of the urban municipalities of Hobart and Launceston, is divided into municipal districts, and every Rural Municipality, Town Board, Main Road District, Road District, Local Health District, Fruit District, Rabbit District, School District, and Public Recreation Ground District included in any municipality established by the Act is abolished. Each district is incorporated and is under the control of a warden and councillors, who, in addition to the specific duties and powers imposed and conferred by the Act of 1906, are vested with powers and authorities under the following Acts :—The Codlin Moth Act 1888, the Rabbits Destruction Act 1889, the Public Health Act 1903, the Education Act 1885, the Roads Act 1884, the Rural Municipalities Act 1865, the Police Act 1905, the Town Boards Act 1896, the Public Recreation Grounds Act 1888, the Cemeteries Act 1865, and the Californian Thistle Act 1883. The Governor is authorised to unite, subdivide, or abolish municipalities or wards on petition, and may

do so without petition if in any municipality there is at any time no council or an insufficient number of councillors to form a quorum. The Act of 1906 was amended in 1908, and again in 1911.

(a) *Formation of Councils.* In the case of municipalities not divided into wards, the council is to consist of the number of members, being a multiple of three, assigned to it by the Governor, while the councils of municipalities which are subdivided consist of three councillors for each ward. Any resident elector is eligible to act as a councillor unless he is disqualified as being an interested person, a bankrupt or convict, or as undergoing a sentence of imprisonment, or as insane. The warden is elected by the councillors from their own body.

° The functions of councils, their borrowing powers, the levying of rates, and the constitution of local and water districts have been referred to in detail in previous issues.

(b) *Qualification of Electors.* Both owners and occupiers of property within a municipality are allowed plurality of votes according to the following scale:—

Annual Value of Property	Under £30.	£30 to £80.	£80 to £160.	£160 to £240.	£240 to £360.	£360 and upwards.
Number of Votes	1	2	3	4	5	6

In the case of joint owners or occupiers the number of votes according to the above scale is equally divided as far as possible, and the vote or votes which cannot be so divided may be given by such one of the joint owners or occupiers as may be appointed by the others. The provisions of the Acts relating to voting by post at parliamentary elections may be made applicable to any municipal election on the petition of the council to the Governor.

(iii.) *Annual Value, Revenue, and Expenditure of Municipalities.* The following table shows the annual value, total receipts, and expenditure of municipalities for the years 1912 to 1916 inclusive:—

**TASMANIA.—ANNUAL VALUE, REVENUE AND EXPENDITURE OF MUNICIPALITIES, 1912 to 1916.**

Year.	Number of Municipalities.	Annual Value of Ratable Property.	Revenue.				Expenditure.†	
			From Rates.	From Govt.	From other Sources.*	Total.		
		£	£	£	£	£	£	
1912	...	51	1,524,789	159,290	26,051	107,935	293,276	276,794
1913	...	51	1,583,739	178,749	17,510	114,046	310,2C5	336,509
1914	...	51	1,766,099	185,954	14,416	169,825	370,195	349,186
1915	...	50	1,654,654	190,491	14,651	172,006	377,148	394,374
1916	...	50	1,717,878	188,939	12,753	216,880	418,572	510,977

\* Including sums derived from loans. † Including repayments of loans.

According to the latest estimate made by the Commissioner of Taxes the capital value of ratable property in 1911 was £30,924,993.

(iv.) *Total Revenue and Expenditure of Local Bodies.* Particulars as to Road Boards and Road Trusts are given in the chapter of this book on "Roads and Bridges." In addition to the local authorities already mentioned, Marine Boards have been established at seven ports in Tasmania for the purposes of constructing and maintaining wharves and jetties and of controlling all matters relating to shipping in the respective ports. Twenty water trusts and forty cemetery trusts have also been established in connection with municipal bodies. The subjoined statement shews the total revenue and expenditure for all local bodies, exclusive of all amounts contributed by the general Government, during each financial year from 1913 to 1917 inclusive:—

**TASMANIA.—REVENUE AND EXPENDITURE OF ALL LOCAL BODIES, EXCLUSIVE OF AMOUNTS CONTRIBUTED BY THE GENERAL GOVERNMENT, 1913 to 1917.**

Particulars.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
<b>*REVENUE.</b>					
Marine Boards and Lighthouses	£ 72,671	£ 73,805	£ 77,732	£ 93,488	£ 82,285
Municipalities†	267,225	292,795	355,779	362,497	405,819
Cemetery Trusts	1,147	1,149	1,391	1,320	1,275
Water Trusts	2,805	2,934	2,508	2,364	2,365
<b>Total</b>	<b>343,848</b>	<b>370,683</b>	<b>437,410</b>	<b>459,669</b>	<b>491,744</b>
<b>†EXPENDITURE.</b>					
Marine Boards and Lighthouses	£ 78,322	£ 63,304	£ 103,202	£ 144,805	£ 102,666
Municipalities†	270,743	318,999	334,770	379,723	498,224
Cemetery Trusts	856	963	1,032	1,499	1,425
Water Trusts	2,065	2,228	2,228	1,966	1,813
<b>Total</b>	<b>351,986</b>	<b>385,494</b>	<b>441,232</b>	<b>527,993</b>	<b>604,128</b>

\* Exclusive of amounts contributed by the general Government. † Exclusive of expenditure from Government contributions. ‡ Including Road and Bridge Trusts, and Town Boards.

### § 3. Water Supply, Sewerage and Drainage.

1. **New South Wales.**—(i.) *Sydney Metropolitan Board of Water Supply and Sewerage.* Prior to the year 1888 the main water supply and sewerage systems of Sydney and suburbs were under the control of the City Corporation, while several of the suburban councils had constructed local systems, but in that year the Government, with the object of placing the administration of both water supply and sewerage systems throughout the County of Cumberland under the control of an independent body, passed an Act authorising the establishment of the Metropolitan Board of Water Supply and Sewerage. This Board consists of seven members, three of whom are appointed by the Government, two by the City Council, and two by the suburban and country municipalities in the County of Cumberland. The Board is under the general supervision of the Minister for Works—a provision considered necessary since the loan expenditure of the Board forms part of the public debt of the State.

(a) *Present System.* In the year 1850 authority was given by the Legislative Council to the City Corporation to construct water and sewerage works. Under this authority a water supply scheme was adopted and carried out, at a cost of nearly £1,750,000, by which the waters of the streams draining into Botany Bay were intercepted and pumped into three reservoirs. This system has now been superseded, the metropolitan water supply being at present obtained from the watersheds of the Nepean, Cataract, and Cordeaux Rivers. The principal reservoirs in connection with the scheme are the "Cataract" and "Prospect" dams. A fuller description of these dams will be found in previous issues of this book (see Year Book No. 5, p. 984), but their dimensions are here given :—

## SYDNEY WATER SUPPLY.—CATARACT AND PROSPECT DAMS.

Dam.	Height above Foundation.	Width at Top.	Thickness at Bottom.	Length.	Area of Reservoir.	Capacity of Reservoir.
	Feet.	Feet.	Feet.	Feet.	Acres.	Gallons.
Cataract ...	192	16½	150	811	2,104	20,743,200,000
Prospect ...	85½	30	523	7,300	1,266½	11,029,200,000*

\* Of which 5,527,000,000 gallons are available by gravitation.

(b) *Aqueducts and Mains.* The water is drawn off from the Prospect reservoir by a canal, five miles in length, to the Pipe Head Basin, situated 16½ miles from Sydney. It is then conveyed for a further distance of five miles to Potts' Hill reservoir, which has a capacity of 100,000,000 gallons, covers twenty-four and a half acres, and is designed to tide the city over any interruption of supply from Prospect, and to prevent fluctuation of pressure. Thence the water passes through a screening tank, and proceeds towards the city in two 48-inch cast-iron mains. A fuller description of the system of reticulation adopted will be found in previous issues.

(c) *Service Reservoirs.* In connection with the water supply there are in all thirty-five service reservoirs, with a total maximum capacity of 67,395,000 gallons.

(d) *Revenue, Expenditure, and Capital Cost of Sydney Waterworks.* The following table gives particulars as to the revenue, expenditure, and capital cost of the metropolitan waterworks for 1901 and 1913-17.

## SYDNEY WATERWORKS.—REVENUE, EXPENDITURE, AND CAPITAL COST, 1901 and 1913-17.

Year Ended 30th June.	Revenue.	Working Expenses.	Capital Cost exclusive of Items on which Interest is not charged.	Percentage of Working Expenses to Revenue.	Percentage of Revenue to Capital Cost.	Interest Payable on Capital Cost.	Net Profit after paying Working Expenses and Interest.
	£	£	£	%	%	£	£
1901 ...	203,348	49,270	4,300,552	24.22	4.72	152,333	1,745
1913 ...	361,187	126,795	5,907,125	35.11	6.11	200,918	33,474
1914 ...	410,823	145,948	6,257,976	35.52	6.56	223,144	41,731
1915 ...	441,966	159,687	6,644,289	36.13	6.65	235,949	46,330
1916 ...	470,744	165,210	7,192,472	35.09	6.54	261,335	44,199
1917 ...	468,537	177,977	7,769,200	37.98	6.03	306,198	-15,688†

\* Rate reduced from 7d. to 6d. from 1/7/08, and meter rents abolished. † - Signifies loss.

(e) *Quantity of Water, Number of Houses, and Population Supplied.* The following table gives various particulars for the years 1901 and 1913-17, shewing the increase in the supply of water in Sydney and suburbs:—

## SYDNEY WATERWORKS.—NUMBER OF GALLONS, HOUSES, AND POPULATION SUPPLIED, 1901 and 1913-17.

Year Ended 30th June.	Number of Houses Supplied.	Estimated Population Supplied.	Average Daily Supply.	Total Supply for the Year.	Aver. Daily Supply.		Mains Laid.
					Per House.	Per Head of Estimated Population	
	No.	No.	1000 Gallons.	1000 Gallons.	Gallons.	Gallons.	Miles.
1901	98,298	491,000	21,583	7,877,677	219	43.95	40
1913	155,213	776,065	32,594	11,896,810	210	41.99	100
1914	166,112	830,560	36,540	13,337,000	220	44.00	102
1915	175,758	878,790	37,548	13,705,061	210	42.72	183
1916	183,598	917,990	39,380	14,374,000	214	42.89	183
1917	193,643	908,215	39,637	14,467,000	204	40.94	194



(f) *Other Water Supply Systems under the Metropolitan Board.* In addition to the main metropolitan water supply system there are certain other systems within the County of Cumberland managed by the Metropolitan Board. (a) The Richmond waterworks are entirely unconnected with the Sydney supply. Water is supplied to the town by a small pumping station on the left bank of the Hawkesbury River, just below the confluence of the Grose and Nepean. (b) The Wollongong waterworks are also unconnected with the Sydney supply. The source of supply is the Cordeaux River and the catchment area is 2400 acres in extent. The total capacity of the reservoir is 173,000,000 gallons and the total length of the main about nineteen miles, exclusive of the extension to Port Kembla and Unanderra. (c) The Manly waterworks are supplied by a special catchment area of about 1300 acres, and are also connected with the metropolitan system by a 10-inch main from Mosman. (d) The water-supply for the districts of Campbelltown, Camden and Narellan, and Liverpool is not drawn from the main Sydney supply through Potts' Hill, but is received by gravitation from the upper canal at Prospect. For further details of these water-supply systems see previous issues.

(ii.) *Metropolitan Sewerage System.* The system which is now under the control of the Metropolitan Board of Water Supply and Sewerage will be found fully described in previous issues. (See Year Book No. 5, p. 986.)

(a) *Revenue, Expenditure, and Capital Cost of Sydney Sewerage Systems.* The following table gives particulars as to the revenue, expenditure, and capital cost of the metropolitan sewerage systems for 1901 and 1913-17:—

**SYDNEY SEWERAGE SYSTEMS.—REVENUE, EXPENDITURE, AND CAPITAL COST, 1901 and 1913-17.**

Year ended the 30th June.	Revenue.	Working Expenses.	Capital Cost, exclusive of Items on which Interest is not Charged.	Percentage of Expenditure to Revenue.	Percentage of Revenue on Capital Cost.	Interest Payable on Capital Cost.	Profit or Loss after Payment of Working Expenses and Interest.
	£	£	£	%	%	£	£
1901 ...	125,290	45,395	3,066,147	36.23	4.05	106,475	—26,580
1913 ...	266,292	91,094	5,083,263	33.95	5.27	171,957	3,241
1914 ...	297,840	104,543	5,448,968	35.10	5.46	193,389	— 92
1915 ...	344,489	111,809	5,775,094	32.45	5.96	205,928	26,752
1916 ...	363,799	120,244	6,114,072	33.05	5.95	224,551	19,004
1917 ...	387,333	138,416	6,722,313	35.73	5.76	269,723	—20,806

NOTE.—The minus sign represents a loss.

(b) *Number of Houses Drained, Population, and Length of Sewers in Sydney Metropolitan Sewerage Systems.* The following table gives particulars as to the number of houses drained, the population, and the length of sewers within the Sydney metropolitan area for 1901 and 1913 to 1917:—

**SYDNEY SEWERAGE SYSTEMS.—NUMBER OF HOUSES DRAINED, POPULATION SERVED, AND LENGTH OF SEWERS, 1901 and 1913-17.**

Year ended the 30th June.	Number of Houses Drained.	Estimated Population Served.	Total Length of Sewers.	Total Length of Storm-water Drains.	Ventilating Shafts Erected.	Sewers Ventilated.
	No.	No.	Miles.	Miles.	Feet.	Miles.
1901 ...	75,416	370,000	515.62	25.91	194,667	450
1913 ...	114,690	573,450	890.53	52.24	401,344	853
1914 ...	118,643	593,200	930.06	53.15	408,778	871
1915 ...	124,759	623,795	972.14	53.65	427,552	915
1916 ...	129,650	648,250	1,022.15	54.08	443,134	953
1917 ...	136,409	682,045	1,085.45	59.55	475,474	1,030

(iii.) *The Hunter District Water Supply and Sewerage Board.* The waterworks of the Lower Hunter were constructed by the Government under the provisions of the Country Towns Water Supply and Sewerage Act of 1880. In 1892 a special Act was passed establishing an independent Board to control the water-supply works. Fuller reference is made to the constitution of this Board and to the municipalities and incorporated areas under its jurisdiction in previous issues of the Year Book. (See Year Book No. 5, p. 988.)

(a) *Description of Waterworks.* The water supply is pumped from the Hunter River about a mile and a half up stream from West Maitland into a settling-tank of 1,390,500 gallons capacity, and thence flows through filter beds into a clear water tank holding 589,500 gallons. It is then pumped from the clear water tank into two summit reservoirs, one of which supplies East and West Maitland, and Morpeth, while the other supplies Newcastle and suburbs, and the townships of South Maitland and Cessnock. There is also a storage reservoir of 172,408,100 gallons capacity, which is resorted to when the river water is too turbid. In these districts there are fourteen service reservoirs, having a total capacity of nearly 5,794,378 gallons supplied by gravitation. On the hill at Newcastle there is also a high-level iron tank with a capacity of 20,000 gallons, which is supplied by a small pumping engine at Newcastle reservoir. The total length of water mains is 411 miles.

(b) *Water Supply, Capital Cost, Revenue, and Expenditure.* By the Act of 1892 referred to above and an amending Act of 1894 the capital debt of the Board was to be liquidated by annual instalments distributed over 100 years with interest at  $3\frac{1}{2}$  per cent. By a further amending Act of 1897 the repayment of expenditure on permanent works was abrogated, and the annual instalments to be paid in liquidation of the cost of renewable works were to be fixed by the Government from year to year. The capital debt of the Board to the Government at 30th June, 1917, was in respect of water supply £660,067, and £443,257 in respect of sewerage. In the subjoined table particulars are given as to the revenue and expenditure, and also as to the number of houses and population supplied in 1901 and 1913 to 1917:—

**PARTICULARS OF HUNTER DISTRICT WATER SUPPLY, 1901 and 1913 to 1917.**

Year ended 30th June.	Revenue.	Working Expenses (including Interest).	Houses Supplied.	Estimated Population Served.	Supply.	
					Daily Average.	Total.
	£	£	No.	No.	1000 Gallons.	1000 Gallons.
1901 ... ..	27,405	30,948	9,086	45,400	1,005	366,889
1913 ... ..	53,673	49,043	18,405	92,025	2,366	863,692
1914 ... ..	66,323	52,994	19,575	97,875	2,791	1,018,810
1915 ... ..	68,611	55,382	20,709	103,545	2,859	1,043,546
1916 ... ..	79,507	58,436	22,056	110,280	3,507	1,283,754
1917 ... ..	78,040	65,338	22,604	113,020	3,435	1,253,897

The average daily consumption of water for all purposes per inhabitant was 30.39 gallons during the year 1917, as against 31.80 gallons during the previous year.

(c) *Sewerage Works.* Considerable progress has been made by the Department of Public Works with the construction of the sewerage works for Newcastle and suburbs. The scheme is designed on the separate system, and will deal with the sewage partly by gravitation and partly by pumping. Up to the 30th June, 1917, about 103 miles of sewers, connecting with 8284 separate properties, were under the control of the Board. For the financial year 1916-17 the revenue was £21,408 and the expenditure £29,316, the latter amount including a £3473 instalment to the sinking fund for the reconstruction of renewable works, and £2754 interest on works not transferred to the Board at 30th June, 1917, and therefore not revenue producing at that date.

(iv.) *Water Supply and Sewerage in Country Towns.* With the object of assisting municipalities to construct systems of water supply and sewerage, the Country Towns Water Supply and Sewerage Act of 1880 was passed, but has since been amended by the Acts of 1887, 1894 and 1905. The principal provisions of these Acts are more fully dealt with in previous issues of this book. (See Year Book No. 5, p. 989.) By an Act passed in 1916 these Acts were applied to shires.

(a) *Waterworks.* Up to the 30th June, 1917, fifty-five country municipalities had availed themselves of the privileges of the Acts as regards waterworks, all of which at that date had been completed and handed over by the Government. The capital debt of these works was £1,188,083, and the total of the sums payable annually for various periods ranging up to 100 years was £56,401, including interest ranging from  $3\frac{1}{2}$  per cent. to 4 per cent., the first repayments having become due at various dates, starting from the end of the year 1893. In the calculation of these repayments the interest on the sums actually expended has been added, and any payments by the councils, as well as sums remitted under the authority of the Act, have been deducted. Other schemes of water supply and extensions of existing works are in course of construction. A few other municipalities have constructed works out of their own resources, and the water supply of Broken Hill with a capital debt of £473,869 was constructed under a special Act and administered by the Minister for Public Works.

(b) *Sewerage Works.* Only seventeen municipal councils have taken advantage of the Act providing for the construction of sewerage and storm water drainage works in country towns. On the 30th June, 1917, the capital debt of these systems was £342,139, the amount payable annually to the Government being £14,211. Other sewerage systems, as well as extensions to existing systems, are in course of construction.

2. *Victoria.*—(i) *The Melbourne and Metropolitan Board of Works.* This Board was established by an Act of 1890, and entered upon its duties in March, 1891. The Board consists of forty members, one of whom is chairman elected every four years by the other members, the retiring chairman being eligible for re-election. Nine members are elected by the Melbourne City Council, four by the South Melbourne Council, three by the Prahran, two each by the Collingwood, Fitzroy, Richmond, and St. Kilda, and one each by the other fifteen suburban municipal councils returning a representative. The sewerage area over which the Board exercises control consists of fifteen cities, five towns, one shire, and parts of five other municipalities, or twenty-six municipalities in all, comprising a total area of 90,821 acres. Control for water supply purposes is also exercised by consent of the Governor-in-Council over 2949 acres in four municipalities. The Board further supplies water to the metropolitan farm at Werribee, and the outfall sewer area. Various other shires also arrange for bulk supplies of water. The total estimated population on the 31st December, 1917, was 733,496. The waterworks for the supply of Melbourne and suburbs were originally carried out by the Government, which had for that purpose contracted loans amounting to £2,389,934; these works were vested in the Board in 1891. The primary object of the creation of the Board was not, however, to take over these works, but was to supply the long called for and pressing want of a sewerage system for the metropolis. To carry out its work the Board is authorised to borrow £10,750,000, exclusive of the loans contracted by the Government for the purpose of waterworks and taken over by the Board. The liability on Government loans on the 30th June, 1917, was £1,559,786, and for loans raised by the Board was £10,775,110. The Board is still empowered to borrow £805,038 before reaching the limit of its borrowing powers.

(a) *Total Cost of Water Supply and Sewerage.* The subjoined table shews the total cost of construction and maintenance of water supply and sewerage from 1853 to 1917 :—

**MELBOURNE AND METROPOLITAN BOARD OF WORKS.—TOTAL COST OF CONSTRUCTION AND MAINTENANCE OF WATER SUPPLY AND SEWERAGE, 1853 to 1917.**

Period ending 30th June.	Water Supply.			Sewerage.			Grand Total.
	Capital Cost.	Working Expenses.	Interest.	Capital Cost.	Working Expenses.	Interest.	
	£	£	£	£	£	£	
1853 to 1891	3,378,246	420,833	1,021,676	...	...	...	4,820,755
1891 to 1901	336,957	367,506	1,021,181	3,307,764	114,268	919,017	6,066,693
1901 to 1911	299,303	384,871	1,026,362	2,981,666	461,706	2,333,348	7,487,256
1911 to 1914	600,222	159,903	354,665	614,401	199,214	902,310	2,830,715
1914 to 1915	129,007	60,547	130,268	245,548	72,030	316,788	954,188
1915 to 1916	91,893	54,580	134,915	166,201	70,783	321,640	840,012
1916 to 1917	31,979	54,566	137,544	108,583	72,658	329,176	734,506
Total ...	4,867,607	1,502,806	3,826,611	7,424,163	990,659	5,122,279	23,734,125

(b) *Revenue and Expenditure of Melbourne and Metropolitan Board of Works.*  
The following table shows the actual receipts and expenditure, and also the loan receipts and expenditure of the Board during 1901-2 and 1913 to 1917 :—

**MELBOURNE AND METROPOLITAN BOARD OF WORKS.—REVENUE AND EXPENDITURE DURING EACH YEAR, 1901-2 and 1913 to 1917.**

Particulars.	1901-2.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
<b>ORDINARY RECEIPTS.</b>						
Water supply ... ..	£ 171,956	£ 295,963	£ 323,762	£ 356,155	£ 344,053	£ 333,647
Sewerage, etc. ... ..	124,696	287,507	320,931	344,768	311,408	293,250
Live stock—Metropolitan farm ... ..	19,929	57,787	62,064	87,135	103,669	86,225
Interest { Water supply ... ..	...	2,277	1,890	1,576	1,718	1,593
{ Sewerage ... ..	17,448	8,695	9,125	8,396	8,694	11,131
Total ... ..	334,029	652,229	716,772	797,930	769,542	725,846
<b>ORDINARY EXPENDITURE.</b>						
General management ... ..	33,621	41,007	44,668	45,032	45,776	49,409
Live stock, etc.—Metropolitan farm ... ..	16,702	14,130	55,570	49,704	87,325	67,206
Maintenance { Water supply ... ..	22,205	34,508	34,125	41,521	41,457	38,452
{ Sewerage ... ..	24,396	50,433	49,198	53,465	54,748	45,208
Interest { Water supply ... ..	102,670	116,716	130,182	131,845	136,633	139,138
{ Sewerage ... ..	192,952	307,630	323,149	325,167	330,568	340,589
War expenditure: Safeguarding works, etc. ... ..	...	...	...	...	1,000	7,431
Patriotic and Belgian Relief Funds ... ..	...	...	...	2,000	10,721	...
Victorian Red Cross ... ..	...	...	...	...	30,000	100
Total ... ..	392,546	594,424	636,892	648,734	738,228	687,533
<b>LOAN RECEIPTS.</b>						
Water supply ... ..	1,636	12,315	10,803	10,138	18,500	8,062
Sewerage ... ..	88,425	61,315	46,620	42,950	53,326	44,926
Proceeds of loans ... ..	396,238	307,952	796,841	223,500	190,512	567,878
Miscellaneous ... ..	...	28,355	17,375	10,735	7,947	2,648
Total ... ..	486,299	409,937	871,639	287,323	270,285	623,514
<b>LOAN EXPENDITURE.</b>						
Water supply construction ... ..	17,058	339,753	160,107	140,102	109,440	39,764
Sewerage construction ... ..	410,760	259,461	242,849	288,582	235,458	154,743
Expenses in floating and redemption of loans ... ..	5,200	130,159	253,426	114	51,559	370,362
Miscellaneous ... ..	—*4,293	47,474	30,004	25,882	30,311	7,156
Total ... ..	428,725	776,847	686,386	454,680	426,768	581,025

\* Excess of stock distribution (£27020) over purchases (£2727).

(ii.) *Melbourne Metropolitan Water Supply.* In December, 1857, the construction of the Yan Yean Reservoir system was completed. A description of the conditions that prevailed in Melbourne prior to that date is given in previous issues of the Year Book.

(a) *Development of System.* The following statement shews the development which has taken place in the water supply system of Melbourne during the sixty years since its inception :—

#### MELBOURNE WATER SUPPLY SYSTEM, 1857 to 1917.

Year.	Estimated Population Supplied.*	Capital cost.†	Charge per 1000 Gallons.	Rate in £.	Reticulation, Mains, &c., Mileage.†	Daily average of annual consumption of water.*
1857 (Dec. 31)	95,442	£ 748,974	10/- and 6/-	1/-	104	2,250,000
1917 (June 30)	733,496	4,867,607	1/-	6d.	1,682	8,604,178

\* 31st December. † 30th June.

(b) *Description of Water Supply Systems.* The water supply of Melbourne consists of three main systems—the Yan Yean (including the high level main), the Maroondah, and the O'Shanassy systems.

A full description of the two former systems has been given in previous issues of this book (see No. 6, p. 983).

The three reservoirs at Preston, which are the main distributors of the central city supply, contain 13,500,000, 24,500,000, and 26,300,000 gallons respectively.

The work has been completed of diverting the waters of the O'Shanassy River, a tributary of the Yarra, by an open aqueduct and pipe line of an aggregate length of 48½ miles, delivering water to the eastern portion of the metropolis by way of Mitcham and Surrey Hills. The total capacity of the scheme is 20,000,000 gallons per day, but it has been completed in the tunnels and some other parts to a capacity of 60,000,000 gallons to provide for further diversions from the Upper Yarra and its tributaries. The scheme was estimated to cost £450,000, and up to 30th June, 1917, £452,027 had been expended. The watershed of the O'Shanassy River, containing 33,000 acres, situated near Warburton, has been excised from the permanent forests area, and a Crown grant was issued to the Board on the 28th January, 1910.

(c) *Catchment Areas, Reservoirs, and Aqueducts.* (i.) *Drainage Areas.* The whole of the catchment areas are absolutely free from population, cultivation, or stock grazing, and are under the complete control of the Metropolitan Board of Works. The present drainage areas from which the water is delivered are as follows :—

#### MELBOURNE WATER SUPPLY.—CATCHMENT AREA IN ACRES, 1917.

Silver and Wallaby Creeks.	Plenty River and Jack's Ck.	Yan Yean Reservoir Catchment.	Maroondah Catchment.	O'Shanassy Catchment.	Total.
12,000	12,000	5,000	40,000	33,000	102,000

All the water is delivered by gravitation, no pumping being required in any portion of the area supplied.

(d) *Storage and Service Reservoirs.* There are two storage reservoirs, having a total capacity of 6,460,000,000 gallons, and thirteen service reservoirs having a total capacity of 131,300,000 gallons. The total daily quantity of water which can be sent into Melbourne is as follows :—

System ...	Yan Yean.	High Level Main.	Maroondah.	O'Shanassy.	Total Supply.
Gallons per day ...	33,000,000	9,000,000	28,000,000	20,000,000	90,000,000

(e) *Quantity of Water, Number of Houses, and Population Supplied.* The following table gives various particulars for the years 1901 and 1913-17, shewing the increase in the supply of water in Melbourne and suburbs :—

**MELBOURNE WATERWORKS.—NUMBER OF HOUSES, POPULATION, AND  
WATER SUPPLIED, 1901 and 1913-17.**

Year Ended 30th June.	Number of Houses Served.	Estimated Population Supplied.	Average Daily Supply.	Total Supply for the Year ended 30th June.	Average Daily Supply.		Rate Levied.	Assess-ments of Houses Served by Metro-politan Water Supply.
					Per House.	Per Head of Esti-mated Popu-lation.		
	No.	No.	,000 Gallons.	,000 Gallons.	Gallons.	Gallons.		£
1901 ...	104,548	491,780	28,732	10,487,007	274.8	58.4	6d. in the £	3,479,721
1913 ...	140,351	614,300	39,380	14,373,761	280.6	64.1	7d. in the £	5,670,801
1914 ...	147,442	639,700	43,644	15,930,104	296.0	68.2		6,217,841
1915 ...	150,825	662,500	36,989	13,501,051	245.2	55.8	6d. in the £	6,577,338
1916 ...	155,208	693,978	37,069	13,567,184	238.8	53.4		6,905,842
1917 ...	158,086	720,577	37,653	13,743,439	239.2	52.3		7,113,740

(f) *Total Cost of Construction, Revenue, Expenditure and Net Profits, 1853 to 1917.* The following table shows the total cost of construction, the revenue, expenditure, and net profits for various periods up to 30th June, 1917:—

**MELBOURNE WATERWORKS.—CONSTRUCTION COST, REVENUE, EXPENDITURE,  
AND NET PROFITS, 1853 to 1917.**

Period.	Capital Cost.*	Revenue.†	Working Expenses.‡	Percentage of Working Expenses to Revenue.	Interest.§	Surplus.
	£	£	£	%	£	£
Total to 1890-1	3,378,246	3,150,055	420,833	...	1,021,676	1,707,546
1891-2 to 1900-1	336,957	1,686,025	367,506	21.80	1,021,181	297,338
1901-2 to 1910-11	299,303	2,054,355	384,871	18.73	1,026,362	643,122
1911-12 to 1913-14	600,222	897,577	159,903	17.81	354,665	383,009
1914-15 ...	129,007	350,549	60,547	17.27	130,268	159,734
1915-16 ...	91,893	334,181	54,580¶	16.33	134,915	144,686
1916-17 ...	31,979	319,614	54,566**	17.07	137,544	127,504
Total ...	4,867,607	8,792,356	1,502,806	...	3,826,611	3,462,939

\* Works commenced in 1853. † Revenue commenced in 1854. ‡ Returns for expenditure commenced in 1859. § First interest paid in 1856. || Rate reduced from 7d. to 6d. in the £. ¶ Not including renewals (£7349) and special war expenditure (£7728). \*\* Not including renewals (£4545) and special War expenditure (£4689).

(iii.) *Melbourne Sewerage.* As stated above, the chief object of the creation of the Melbourne and Metropolitan Board was to carry out an efficient system of sewerage. The cost of removal of the sewage in 1894 was about £90,000, equal to a capital expenditure of £1,750,000. This movable pan system has been displaced by the water carriage system throughout the greater portion of the metropolis, and in other parts the work of reticulation is now proceeding.

(a) *Description of Sewerage Systems.* The whole of the sewage of the metropolis is being gradually collected by means of two principal sewers and a subsidiary main leading to the pumping station at Spotswood. A description of the scheme may be found in previous issues. (See Year Book No. 5, p. 1007.)

(b) *Metropolitan Sewage Farm.* The farm originally contained 8847 acres, situated on the western side of the Werribee River. The price paid for the land was £17 10s. per acre (including compensation for severance), which in its virgin unimproved state cost the Board in 1892, £159,873. This sum included the purchase of a strip of land 11½ miles long (168½ acres) on which the greater portion of the outfall sewer is constructed. Since 1911, 2306 acres have been purchased, making the total area of the farm 11,153 acres at 30th June, 1917, its total cost to that date being £555,323. About 34,022,175 gallons of sewage had to be disposed of every twenty-four hours during the year in 1916-17 in irrigating the fields. It is spread over properly prepared and sown blocks of land by a series of mains and lateral carriers. The blocks are laid down with grass and lucerne, on

which sheep and cattle are depastured. During the financial year 1916-17, 4569 sheep were sold, the profit for the year being £1154. Cattle to the number of 5147 were sold, the profit for the year on cattle being £19,195.

(c) *Number of Houses Connected, Capital Cost, Revenue and Expenditure.* The following table gives particulars as to the number of houses connected to the sewerage system, the total capital cost, and the receipts and disbursements during 1901 and 1913-17 :—

**MELBOURNE SEWERAGE WORKS.—TENEMENTS CONNECTED, CAPITAL COST, REVENUE, MAINTENANCE, AND WORKING EXPENSES, 1901-2 and 1913-17.**

Year.	Number of Houses Connected.	Capital Cost.	Revenue.			Maintenance, Repairs and Renewals.
			From Rates.	From other Sources.	Total.	
	No.	£	£	£	£	£
1901-2 ...	47,172	3,610,225	126,725	10,968	137,693	24,336
1912-13 ...	125,103	6,695,534	285,721	17,655	303,376	51,804
1913-14 ...	131,168	6,903,831	319,817	18,642	338,459	49,615
1914-15 ...	138,108	7,149,379	342,312	40,146	382,458	54,558
1915-16 ...	143,737	7,135,580	307,625*	50,487	358,112	52,402†
1916-17 ...	148,395	7,424,163	289,512‡	25,586	315,098	53,099§

\* Rate reduced from 1s. 1d. to 11d. in the £. † Not including renewals (£3424) and special war expenditure (£2925). ‡ Rate reduced from 11d. to 10d. in the £. § Not including renewals (£3790) and special war expenditure (£2635.)

(iv.) *Water Supply in Country Towns and Districts.* By the Water Act 1905 (now the Water Act 1915), which came into operation on the 1st May, 1906, the control and management of all Irrigation Trusts, with one exception, and of a number of waterworks and water supply districts were centralised, and their works and property vested in the State Rivers and Water Supply Commission. The powers and duties of this Commission were extended by the Water Act 1909 (now embodied in the Water Act 1915), the whole of the Water Supply Department being now merged in the Commission. Further information with regard to this Commission and to the works and districts under its control are given in the section in this book dealing with Water Conservation and Irrigation. There are, however, in different parts of Victoria a number of other waterworks which are concerned chiefly with domestic supply, and which are controlled by local authorities, i.e., by Waterworks Trusts or by municipal corporations. These works are constructed out of moneys either granted or lent by the State Government. The following table gives particulars as to the waterworks under the control of Trusts and municipal corporations for the years 1901 and 1913-17 :—

**VICTORIA.—COUNTRY WATERWORKS UNDER TRUSTS AND MUNICIPAL CORPORATIONS, 1901. and 1913-17.**

Year.	Waterworks Trusts.				Municipal Corporations.			
	Number of Trusts.	Capital Cost.	Capital Indebtedness.	Interest Outstanding.	Number of Corporations.	Capital Cost.	Capital Indebtedness.	Interest Outstanding.
	No.	£	£	£	No.	£	£	£
1901 ...	76	823,418	748,089	12,461	24	655,702	470,041	6,635
1913 ...	89	1,083,390	866,594	10,858	22	656,200	415,672	1,213
1914 ...	90	1,114,727	889,905	14,071	22	689,925	447,347	2,005
1915 ...	94	1,144,095	911,786	13,128	22	700,832	450,513	2,050
1916 ...	95	1,169,520	929,561	13,358	22	718,089	464,114	1,871
1917 ...	95	1,224,211	937,510					

\* Returns not available.

Under the provisions of the Local Government Act 1903 (now embodied in the Local Government Act 1915), municipal councils are authorised to construct and maintain tanks, dams, and reservoirs, and must maintain existing works for the gratuitous supply

of water. They are also empowered to accept the management and control of new waterworks within their respective localities, and may, with the consent of the Governor, construct or purchase new works within or without their locality. Councils are also authorised to enter into contracts for the supply of water for any period not exceeding ten years with the owner of any waterworks. Every municipality may levy a special water rate for water supplied, or for the purpose of constructing waterworks or paying the interest on any loan contracted by the council for such purpose, but the amount of the rate must not exceed in any year the sum of two shillings in the pound, provided that a minimum of ten shillings may be fixed by the council to be paid in respect of any property to which water is supplied.

(v.) *Geelong Waterworks and Sewerage Trust.* This Trust was constituted under the Geelong Municipal Waterworks Act 1907, with borrowing power up to £300,000, afterwards increased by Act No. 2322, 1911, to £350,000, and subsequently to £525,000. It was reconstituted under the Geelong Waterworks and Sewerage Act 1910, with power to borrow an additional £250,000 for the purpose of installing a sewerage system for Geelong and suburbs. These Acts have since been consolidated under the Geelong Waterworks and Sewerage Act No. 2661, and the borrowing power for sewerage purposes increased to £375,000. The available storage capacity of the reservoirs is 1655 million gallons, and the Trust is authorised to supply water to (a) City of Geelong; (b) the suburbs thereof, and all places within a radius of five miles of the Geelong post office; and (c) any place within ten miles on either side of the main pipe from Stoney Creek to Geelong. The cost of the works (water and sewerage) to 30th June, 1917, was £793,660, the estimated population served is 35,000, and the number of assessments 11,346. The receipts for the year amounted to £43,312. The sewerage scheme provides for a main outfall sewer 4 ft. 3 in.  $\times$  3 ft. 3 in. to the ocean at Black Rock—a distance of about nine miles. The drainage area embraces an area of 8081 acres, including the city of Geelong, boroughs of Geelong West, Newtown and Chilwell, and the suburban areas in the shires of Corio, South Barwon, and Bellarine.

**3. Queensland.**—(i.) *The Metropolitan Water and Sewerage Board.* This Board was constituted by the Metropolitan Water and Sewerage Act 1909 and the Amended Act of 1915, which divested the then existing Water Board of its powers and duties and vested them in an extended form in the new Board. The Acts further empower the Board to carry out a sewerage and drainage system, and relieve the local authorities of their responsibilities in that matter. The district of the new Board comprises the cities of Brisbane and South Brisbane, the towns of Hamilton, Ithaca, Toowong, and Windsor, and the shires of Balmoral, Cooparoo, Enoggera (except division 3), Sherwood (except division 1), Stephens, Taringa, Toombul, and a portion of Kedron.

The Board consists of nine members, viz., the president and eight elected colleagues.

(a) *Brisbane Water Supply.* The supply is derived from the upper reaches of the Brisbane River, and from two storage reservoirs, known respectively as the Enoggera and the Gold Creek reservoirs.

(1) *The Brisbane River Supply.* About 75 per cent. of the total supply of water to the metropolitan area is derived from the pumping station situated at Mount Crosby. The catchment area above the pumping station is 4000 square miles. The water is pumped from the river into a reservoir 267 feet long, 100 feet wide, and 15 feet deep, and 463 feet above low water mark at Brisbane. The capacity of this reservoir is 2,500,000 gallons. A larger reservoir and sedimentation basins have been completed at a slightly lower level than the first-named reservoir, the capacity of which is 4,600,000 gallons. The Board has also completed the installation of three powerful pumping engines, each capable of pumping 6,000,000 gallons in 24 hours, the whole plant being one of the finest in Australia.

(2) *The Enoggera Reservoir.* The Enoggera works are distant from Brisbane about eight miles by road. The catchment area is nearly thirteen square miles in extent, and the reservoir, which is formed by an earthen dam, holds 1,000,000,000 gallons, of which 600,000,000 are available by gravitation. The greatest length of the reservoir is 2600 yards, and its greatest



breadth 700 yards. The supply from Enoggera is filtered through an intermittent sand filtration plant, comprising half an acre of sand beds, and a pure water reservoir with a capacity of 750,000 gallons.

- (3) *The Gold Creek Reservoir.* This reservoir is situated in the upper waters of Gold Creek, a branch of Moggill Creek, distant from Brisbane by road about thirteen miles. The supply is drawn from a catchment area adjoining that of Enoggera, and comprising an area of nearly four square miles. The total capacity is about 406,000,000 gallons, of which 400,000,000 gallons are available.
- (4) *The Cabbage Tree Creek Reservoir.* This reservoir is some five miles from the pumping station in a straight line, but by windings in the river about 15 miles. It holds about 5800 million gallons, and is a very valuable asset to the water supply in time of drought. It is intended to convey this water to the pumping station by a conduit.
- (5) *Service Reservoirs.* Certain portions of the metropolitan area are supplied with water from service reservoirs, and these reservoirs are supplied from the sources alluded to above. These service reservoirs are constructed at Highgate Hill, Wickham Terrace, and Bartley's Hill, and have a total capacity of over 4,000,000 gallons. A second reservoir is in course of construction at Bartley's Hill, which will, on completion, bring the capacity of the service reservoirs up to 6½ million gallons. A fuller description of the Brisbane water supply scheme may be found in previous issues.

(b) *Brisbane Waterworks : Cost, Revenue, Expenditure, and Interest.* The subjoined table gives particulars as to the total capital cost, the revenue and expenditure, and amount of interest and loan redemption during 1901 and each of the years 1913 to 1917 :—

**BRISBANE WATERWORKS.—COST, REVENUE, EXPENDITURE, INTEREST, AND REDEMPTION OF LOANS, 1901 and 1913-17.**

Year.	Capital Cost.	Revenue from Rates and Sales of Water.	Working Expenses.	New Work Construction.	Interest and Redemption of Loans.
	£	£	£	£	£
1901 ...	694,973	60,120	17,462	7,535	42,426
1913 ...	1,255,898	76,922	43,135	121,083	31,498
1914 ...	1,489,720	97,366	44,549	233,822	39,194
1915 ...	1,852,622	103,530	50,078	361,765	52,704
1916 ...	2,136,699	111,066	53,879	284,078	53,995
1917 ...	2,422,857	121,514	59,199	286,158	60,388

(c) *Brisbane Waterworks : Length of Mains, Tenements and Population Served, and Water Consumption.* The following table shews the length of mains, the number of tenements connected, the population supplied, the total quantity of water supplied, the average daily supply, and the average daily supply per head of population supplied during 1901 and each year from 1913 to 1917 :—

**BRISBANE WATERWORKS.—PARTICULARS, 1901 and 1913-17.**

Year.	Length of Reticulation Mains.	Number of Tenements Connected.	Estimated Population Supplied.	Quantity Supplied.	Average Daily Supply.	Average Daily Supply per Head of Estimated Population.
	Miles.	No.	No.	,000 Gallons.	Gallons.	Gallons.
1901 ...	198	15,652	78,260	1,536,260	4,208,931	55
1913 ...	370½	28,301	139,925	2,099,590	7,752,302	41.05
1914 ...	389	29,612	148,060	2,293,920	6,284,712	42.44
1915 ...	405	31,442	157,210	2,655,440	6,541,430	41.60
1916 ...	414	31,770	158,030	2,629,108	7,183,354	42.44
1917 ...	429½	33,082	165,410	2,827,836	7,747,498	46.83

The total length of the trunk mains is 97 miles.

A scheme of sewerage has been devised for Brisbane and its suburbs. It is intended to construct works for the provision of a population of 275,000, and work is now being carried on in connection with the main sewers. Altogether 48,668 lineal feet of main sewers have been constructed, and 10,966 lineal feet are under construction. The latter includes a tunnel under the River Brisbane. Plans for the sewage treatment works have been approved of by the Department of Public Works, and further plans embodying the actuated sludge method of treatment are now under review. The survey work has been carried on, 19,252 houses having now been surveyed.

(ii.) *Country Towns Water Supply.* In addition to the city of Brisbane there were at the end of the year 1916 twenty-eight towns in Queensland provided with water supply systems, constructed by municipalities chiefly from Government loans. The sub-joined statement gives particulars of all the water supply systems—exclusive of Brisbane—for the year 1916 :—

#### QUEENSLAND.—PARTICULARS OF COUNTRY WATER SUPPLY SYSTEMS, 1916.

£				£			
Cost of construction to 31/12/16 ... 873,738				Expenditure	Office and salaries ... 14,386		
Receipts	Rates and sales of water 99,622				Construction ... 33,129		
	Other ... 21,338*				Maintenance ... 48,091		
	<hr/>				Interest & redemption 29,766		
	Total receipts ... 120,960				Other expenses ... 9,752		
				<hr/>			
				Total ... 135,124			
<hr/>							
Assets ... 705,012				Liabilities ... 495,048			

\* Including £18,389 from Government loans.

4. *South Australia.*—(i.) *Adelaide Water Supply System.* The water supply system of Adelaide is under the control of the Public Works Department. The supply is obtained partly from the catchment areas of the rivers Onkaparinga and Torrens, and Sixth Creek, and partly from springs and pumping stations. There are three storage reservoirs, situated at Happy Valley, Hope Valley, and Thorndon Park, having an aggregate capacity of 4,101,000,000 gallons, while the tanks used in connection with the springs and pumping stations have a further capacity of 4,824,000 gallons. A new reservoir having a capacity of 3,650,000,000 gallons is nearly completed at Millbrook, to be supplied from the River Torrens. The total capital cost up to the 30th June, 1917, was £2,016,051, the total revenue being £3,160,886, and the area served approximately 106,000 acres.

The following table gives various particulars relating to the water supply of Adelaide for the years 1912 to 1917 inclusive:—

#### ADELAIDE WATER SUPPLY.—LENGTH OF MAINS, REVENUE, EXPENDITURE, AND CONSUMPTION OF WATER, 1912 TO 1917.

Year Ended 30th June.	Length of Mains.	Gross Revenue.	Working Expenses.	Net Revenue.	Percentage of Net Revenue on Capital Cost.	Total Consumption of Water.*
	Miles.	£	£	£	%	Million of Gals.
1912 ...	763½	94,280	26,384	67,896	3.68	4,600
1913 ...	802½	105,590	27,982	77,608	4.12	4,700
1914 ...	836	113,156	30,106	83,050	4.32	5,150
1915 ...	859	112,082	36,029	76,053	3.85	3,467
1916 ...	873	103,947	35,412	68,535	3.42	3,223
1917 ...	882	118,951	32,974	85,977	4.26	4,113

\* In the Adelaide Water District there are no governing meters. The quantities shown above are as recorded by gaugings taken at the reservoirs, and include evaporation and absorption.

(ii.) *Adelaide Sewerage System.* In connection with the sewerage system of Adelaide, which is also under the control of the Public Works Department, about 351 miles of sewers had been laid in the city and suburbs up to the 30th June, 1917. The sewage is

disposed of on a farm and filter-beds, the latter being used only during the winter months. A scheme of sewerage extension which includes a pumping station to deliver the sewage to the existing sewage farm is now nearing completion.

The following table gives particulars relating to the Adelaide sewerage system for the years 1912 to 1917 inclusive:—

**ADELAIDE SEWERAGE SYSTEM.—REVENUE AND EXPENDITURE, 1912 to 1917.**

Year Ended the 30th June.	Revenue.			Expenditure.			Net Revenue.	
	Rates and Interest.	Sewage Farm. Sales of Produce, etc.	Total.	Maintenance.	Sewage Farm. Working Expenses.	Total.	Total.	Percentage on Capital Cost.
	£	£	£	£	£	£	£	%
1912 ...	41,449	6,984	48,383	9,376	5,089	14,415	33,968	4.88
1913 ...	45,373	8,392	53,765	9,803	6,392	16,195	37,570	5.01
1914 ...	49,507	9,588	59,095	10,242	5,629	15,871	43,224	5.55
1915 ...	52,348	10,040	62,388	9,688	6,948	16,636	45,752	5.74
1916 ...	56,606	21,207	77,813	11,410	14,482	25,842	51,971	6.39
1917 ...	57,488	13,664	71,152	11,350	10,794	22,144	49,008	5.96

The seaside town of Glenelg is served by a separate sewage disposal works, including a pumping station, septic tank, lucerne plots, and filter beds. The net revenue for the year ended 30th June, 1917, was £930, being 1.87 per cent. on the capital cost. Up to the same date 15½ miles of sewers had been laid.

(iii.) *Water Supply in Country Towns.* In South Australia there is a number of country waterworks under the control of the Public Works Department. There are large reservoirs at Barossa, Beetaloo, Bundaleer, Yeldulknie, and Warren, which supply sixty-three townships with water for domestic and stock purposes. The principal towns thus supplied are Gawler, Wallaroo, Moonta, Kadina, Port Pirie, Port Wakefield, Balaklava, Tanunda, and Cowell. The following table shews the capacity of these reservoirs, together with particulars as to the townships supplied and the country lands reticulated:—

**PRINCIPAL COUNTRY WATERWORKS, SOUTH AUSTRALIA, 1917.**

Reservoirs.	Townships Supplied.			Country Lands Reticulated.		Capacity in Million Gallons.	
	Number.	Square Miles.	Miles of Main.	Square Miles.	Miles of Main.	Head-works.	Service Reserv'rs.
Barossa ...	23	40	70	1,007	543	993	10
Beetaloo ...	22	158	174	1,661	877	800	100
Bundaleer ...	14	8	32	1,088	477	1,319	16
Yeldulknie and Ullabadinie ...	2	3	6	500	96	288	...
Loxton ...	1	2	3	530	...	*	*
Warren ...	2	4	10	473	22	1,049	...

\* Pumped from River Murray.

Sixteen township districts are supplied from smaller local reservoirs, the most important town served being Port Augusta. A new water supply scheme is in course of construction at the Baroota Creek to augment the supply of Port Augusta, Port Pirie and farming lands, while the construction of a large reservoir on the Tod River is under consideration for the supply of Port Lincoln and farming lands in Eyre Peninsula. The reservoir with leading and reticulation mains for supplying the towns of Port Victor, Port Elliot, Middleton and Goolwa has been completed and is in operation.

5. **Western Australia.**—(i.) *Water Supply, Sewerage and Drainage Department.* Prior to 1912, water supply, sewerage and drainage in Western Australia, although under Governmental control, were nevertheless under the management of several distinct departments. In that year, however, the Government decided that these functions should be concentrated in one department with the Minister of Works as administrator, and on the 1st August, 1912, a new department with the above title assumed the management of the undermentioned water supplies:—(a) The Metropolitan Water Supply, Sewerage and Drainage Undertaking. (b) The Goldfields Water Supply Undertaking. (c) Mines Water Supplies, boring and well-sinking in mining districts, formerly a branch of the Mines Department. (d) Water supplies, sewerage and drainage, well-sinking, boring, etc., in agricultural districts, etc., formerly a branch of the Public Works Department. The total capital expenditure on works controlled by the Department was, at 30th June, 1917, £7,375,104.

The Acts of Parliament administered by the new department are:—“The Metropolitan Water Supply, Sewerage and Drainage Act 1909”; “The Goldfields Water Supply Act 1902” and amendment; “The Water Boards Act 1904”; “The Lands Drainage Act 1900” and amendment; “The Water Supply Act 1893”; and “The Rights in Water and Irrigation Act 1914.”

(ii.) *Perth Metropolitan Water Supply, Sewerage, and Drainage Undertaking.* The Perth Metropolitan Water Supply Works were first opened by a private company in October, 1890. Under the provisions of the Metropolitan Waterworks Act 1896, however, the works were purchased by the Government at a cost of £220,000, and were placed under the control of a Board, the functions of which were exercised from the year 1904 to 1909 by the Minister for Works. By the Metropolitan Water Supply, Sewerage, and Drainage Act 1909, all water and sewerage works formerly vested in the Metropolitan Board were transferred to a Minister of Water Supply, Sewerage, and Drainage. In August, 1912, the administration was transferred to the new Water Supply Department.

(a) *Water Supply.* The supply of water is derived from six sources—(i.) the Victoria reservoir, (ii.) Bickley Brook reservoir, (iii.) the Mundaring reservoir, (iv.) Narrogin Brook, (v.) Walter's Brook, and (vi.) artesian bores. A description of the principal schemes is given in previous year books (see Year Book No. 7, page 887). For the year ending 30th June, 1917, the total consumption of water was 1938 million gallons, an increase of 9 millions over the previous year. The number of services at that date was 31,797, and the length of mains was 609 miles.

(b) *Financial Operations of Water Supply Branch.* The following table gives particulars of the financial operations of the Metropolitan Water Supply Branch for each year ending the 30th June from 1912 to 1917 inclusive:—

**PERTH METROPOLITAN WATER SUPPLY BRANCH.\*—PARTICULARS OF  
FINANCIAL OPERATIONS, 1912 to 1917.**

Year ended the 30th June.			Capital Cost of Works.	Depre- ciation.	Net Capital Cost.	Gross Revenue.	Cost of Main- tenance and Manage- ment.	Ratio of Working Expenses to Revenue.
			£	£	£	£	£	Per cent.
1912	...	...	701,852	107,388	594,464	66,892	25,082	37.49
1913	...	...	768,068	143,030	625,038	74,600	25,479	34.11
1914	...	...	892,434	167,326	725,108	87,802	31,483	35.86
1915	...	...	964,670	183,910	780,760	99,953	33,580	33.52
1916	...	...	997,650	201,834	795,816	103,668	37,987	36.60
1917	...	...	1,019,388	220,750	798,638	95,451	36,075	37.79

\* Perth, Fremantle, and Claremont combined.

(c) *Consumption of Water.* The following table shews the total annual supply, the average daily supply, and the average daily supply per house and per head of population during each financial year from 1913 to 1917 inclusive:—

**METROPOLITAN WATER SUPPLY BRANCH.—CONSUMPTION OF WATER,  
1913 to 1917.**

Year.	Average Daily Supply in ,000 Gallons.			Water Supply for Years in ,000 Gallons.			Number of Houses Supplied.	Esti- mated Popu- lation sup- plied.	Average Daily Supply during Years.	
	From Reser- voirs.	From Bores.	Total.	From Reser- voirs.	From Bores, etc.	Total.			Per House.	Per Head of Popu- lation.

**CENTRAL DISTRICT (INCLUDES PERTH, FREMANTLE, CLAREMONT  
AND GUILDFORD).**

	Gals.	Gals.	Gals.	Gals.	Gals.	Gals.	No.	No.	Gals.	Gals.
1913	1,285	3,026	4,311	469,311	905,960	1,375,171	24,150	100,000	156	39.7
1914	1,954	2,805	4,759	713,368	1,023,726	1,737,094	28,391	120,000	167	39.6
1915	1,171	3,723	4,893	427,598	1,358,109	1,785,797	29,721	127,000	164	38.5
1916	2,202	2,609	4,811	806,073	955,075	1,761,148	30,752	129,300	156	37.2
1917	2,100	3,179	5,279	766,436	1,160,464	1,926,900	31,797	133,556	166	39.5

**ARMADALE DISTRICT.**

1915	28	...	28	10,220	...	*10,220	82	300	*340	*93.0
1916	9	...	9	3,274	...	3,274	83	300	107	29.8
1917	29	...	29	10,663	...	10,663	98	410	298	71.2

\* Includes water supplied to Railways.

(d) *Sewerage and Drainage in Perth and Fremantle.* The work of providing a sewerage system for Perth and Fremantle was commenced in 1906, and has proceeded without interruption up to the present time. Up to 30th June, 1917, 13,069 houses had been connected to the sewers. The revenue of the Sewerage and Drainage undertaking for 1916-17 was £52,538, as against £44,667 for the preceding year. The maintenance expenditure amounted to £15,254, and interest and sinking fund charges to £46,086. A description of the method of sewage disposal adopted may be found in previous issues. (See Year Book No. 5, p. 1031.)

(iii.) *Goldfields Water Supply Undertaking.* The Act under which the works were constructed was introduced in Parliament by Sir John Forrest, G.C.M.G., then Premier of Western Australia, in September, 1896, and provided for an expenditure of £2,500,000, and a daily supply of 5,000,000 gallons. The works designed by the late Mr. C. Y. O'Connor, Engineer-in-Chief of the State, were originally known as the "Coolgardie Water Scheme," but are now officially called the "Goldfields Water Supply." Construction work in connection with the scheme was commenced early in 1898, and the water was delivered in Kalgoorlie in January, 1903. The source of supply is the Helena River, in the Darling ranges, where, at about 18 miles from Perth, an impounding reservoir, 760 acres in extent, with a catchment area of 569 square miles, has been constructed. A detailed description of the scheme will be found in previous issues of the Year Book (see Year Book No. 9, p. 924). The area of operations embraces 16,000 square miles, the total length of the water area being approximately 380 miles. The cost of the original works, including expenses of raising loans, was £2,866,454, and of supplementary works £525,684, making a total of £3,392,138. The Mundaring Reservoir cost £249,000. Its capacity is 4,650,000,000 gallons, and its surface area at full supply level 672 acres. The height of the wall above the river bed is 100 feet; length of wall, 755 feet; width of wall at bottom, 85 feet; at top, 11 feet; and when reservoir is full, the water extends back for the distance of 7 miles.

During the financial year 1916-17, the total consumption amounted to 1,061,000,000 gallons, a decrease on the previous year of 137,000,000 gallons. The gross revenue was £214,838, and the working expenses £88,852, leaving a surplus available towards interest and sinking fund of £125,986. The outlay for interest and sinking fund charges in respect of supplementary capital absorbed £33,216, leaving £92,770, payable to the State Treasury. During the financial year the State Treasury paid £168,813 interest and sinking fund on State loans in respect to these works, and the operations of the undertaking showed a net deficiency of £76,043. Reticulation figures are as follows:—Towns reticulation, 245 miles; supply mains to towns, 80 miles; supply mains to mining centres, 79½ miles; agricultural extensions, 481 miles; total mains, including main conduit, 1230.

(iv.) *Water Supplies for Towns.* Under the Water Boards Act 1904, the following water undertakings are administered by the Department:—Collie, Cue-Day Dawn, Derby, Geraldton, Leonora, Meekatharra, Menzies, Ora Banda, and Pingelly. Water supplies for Albany, Broome, Bunbury, Busselton, Carnarvon, Port Hedland, Roeburne, Sandstone, Wagin, and Wyndham are administered by local boards under the supervision of the Department.

(v.) *Mines Water Supplies.* At the present time the water stations under the control of the Engineer for Goldfields Areas number about 1400, and are spread over an area of nearly 500,000 square miles. The principal works carried out by the Branch are as follows:—(a) Domestic supplies for mining towns and the supply of water for battery and general mining purposes. (b) Opening up the very remote portions of the State by means of tracks, of which there are about 4000 miles. (c) The sinking of wells and bore-wells, also testing the country by means of boring to locate water, and thus enabling the mineral resources of the State to be systematically prospected. (d) Diamond drilling has also been carried out for the purpose of testing the country for minerals at depths unattainable with the ordinary boring plants. (e) Over 3000 miles of stock routes have been opened up, and wells have been sunk at easy stages, capable of watering mobs of 400 head of cattle. Tanks, dams, and reservoirs have been made on the gold-fields for the conservation of surface water, their total storage capacity being over 200,000,000 gallons, and their cost over £400,000.

A very important adjunct of the branch is the camel farm established at Coolgardie, where the breeding of camels is undertaken, the number at present being about 240. These camels are used by parties from the Water Supply Branch in the arid regions of the interior, where water is scarce, and the stages are long.

(vi.) *Water Supplies in Agricultural Areas.* Owing to the rapid development in agricultural districts in what a few years ago was practically unexplored country, and the consequent necessity for providing water for settlers, a large number of tanks were excavated, and wells sunk where suitable water had been proved by boring. Of 2508 shallow bores put down, fresh water was obtained in 427, stock water in 218, the others being salt or dry. The number of tanks excavated to 30th June, 1917, was 322, with an approximate capacity of 114,500,000 gallons, and the number of wells 283, the estimated capacity of which is 52,500,000 gallons. The capital expenditure for the financial year ending June, 1917, was £11,205.

(vii.) *Land Drainage.* Under the Land Drainage Act 1900 the drainage undertaking for the Torbay-Grassmere District is administered by the Department. Undertakings controlled by Boards under the same Act are East Jandakot, Lennox, Koriyekup, Njookenbooroo, Sterling, Saidie, and Wangong.

6. *Tasmania.*—(i.) *Hobart Water Supply.* The original water supply of Hobart was obtained from a stream known as the Hobart Rivulet, flowing from Mount Wellington, the works being carried out in 1831 by the Imperial Government. These works consisted of an aqueduct and a line of cast-iron pipes, the water being distributed to several points known as "wells." By an Act of the State Parliament passed in 1860 the works were

transferred to the municipality. Under this Act certain additional streams flowing from Mount Wellington were acquired as sources of supply, and a storage reservoir containing 40,000,000 gallons was constructed. The catchment area on Mount Wellington at present comprises an area of 4200 acres, the sources of supply having been extended at various times as far as the North West Bay River, fifteen miles from Hobart.

(a) *Storage Reservoirs.* There are three storage reservoirs about 3 miles from the city. One standing 502 feet above sea-level has a capacity of 60,000,000 gallons; the second is 447 feet above sea-level, with a capacity 40,000,000 gallons; while the third, which has been only recently completed, will hold 207,000,000 gallons. The whole of the supply is by gravitation. The water is brought from the various mountain streams by means of pipes to the storage reservoirs, and thence by four 10-inch cast-iron mains, of which three lead to the distributing reservoirs, and one direct to the shipping and southern portion of the city.

The provision of the new reservoir and the laying down of a new concrete intake pipe line from the N.W. Bay River has placed the city in a very good position in respect of water, and the supply is sufficient for a much larger population than is served at present.

(b) *Capital Cost, Tenements Connected, Length of Mains, Revenue and Expenditure.* The total capital cost to the end of 1916 was £332,000, but a considerable amount of reticulation work has been done out of revenue and not charged to capital account. The outstanding loans at the end of 1916 amounted to £270,300. At the same date the number of tenements supplied in the city and suburbs was 8621, the population 35,000, and the length of reticulation mains 94½ miles. The revenue and expenditure for the last six years were as follows:—

#### HOBART WATERWORKS.—REVENUE AND EXPENDITURE, 1911 to 1916.

Particulars.	1911.	1912.	1913.	1914.	1915.	1916.
	£	£	£	£	£	£
Revenue ... ..	31,207	23,858	21,982	22,191	23,382	24,801
Expenditure ... ..	20,381	20,584	21,336	24,550	26,471	27,676

(ii.) *Hobart Sewerage System.* A scheme for the construction of a sewerage system in Hobart was adopted in 1903. The sewage is discharged into the estuary of the River Derwent. Up to the end of the year 1916 about 72½ miles of sewers had been laid at a cost of about £191,000, and 7102 tenements had been connected. The revenue for the year was £12,574. The scheme, which is intended to sewer over 2000 acres so as to serve an estimated population of about 80,000 people, is practically completed. The suburb of Queenborough has recently become incorporated with the city, and arrangements are now being made to extend the system to this district, the work of construction having recently been commenced.

## § 4. Harbour Trusts.

1. *Introduction.*—In the chief ports and harbours of the Commonwealth, administrative bodies have been created, in whom is vested the control and management of the port with respect to dredging, wharf and harbour accommodation, pilotage, harbour dues, etc.

Of these Trusts or Boards some are purely departmental, some are nominated by Government, while others are comprised of members appointed by the municipal and other associations connected with the port. In the latter case, the Government is usually represented on the Board by one or more nominated members. The Boards and Trusts mentioned hereunder are the only ones for which information is at present available.

2. **Sydney Harbour Trust.**—This Trust was established by an Act which came into force on the 11th February, 1901. Its powers and duties have been dealt with in previous issues of this book, together with some of the more important improvements carried out by the Commissioners. (See Year Book No. 5, p. 990.)

(i.) *Revenue, Expenditure, and Capital Cost.* The subjoined table gives particulars of the revenue and expenditure of the Trust, and also shows the total capital debt for properties, etc., vested in the Commissioners, the amount of interest payable on the debt, and the balance of revenue after deducting expenditure, interest, and the amount of the Commissioners' salaries:—

**SYDNEY HARBOUR TRUST.—REVENUE, EXPENDITURE, CAPITAL DEBT,  
INTEREST AND BALANCE, 1901 and 1913-17.**

Year ended the 30th June—	Revenue.				Expenditure.	Total Capital Debt.	Interest.†	Balance.
	Wharfage & Harbour Rates.	Tonnage Rates & Berthg. Charges	From Other Sources.	Total.				
	£	£	£	£	£	£	£	£
1901* ...	42,784	3,208	12,324	58,316	11,275	4,692,782	55,554	— 8,513
1913 ...	258,703	18,417	173,162	450,282	154,540†	6,535,853	221,049	74,692
1914 ...	260,761	19,867	188,901	469,529	161,479†	6,992,932	248,088	59,962
1915 ...	255,217	15,046	194,418	464,681	161,358†	7,367,922	263,478	39,845
1916 ...	274,551	17,630	197,540	489,721	171,951†	7,948,756	289,256	28,484
1917 ...	252,044	29,095	230,841	511,980	165,586†	8,598,939	330,954	15,441

\* For the period from 11th February to the 30th June, 1901. † The rate of interest charged each year is the average rate on the total capital debt of the State, which varies. ‡ Including expenditure for the renewal, replacement or reconstruction of wharves or buildings.  
Note.—The minus sign (—) represents a loss.

(ii.) *Dredging and Towing.* The subjoined statement gives particulars of the dredging and towing done by the dredges and tug-boats owned by the Trust:—

**SYDNEY HARBOUR TRUST.—PARTICULARS OF DREDGING AND  
TOWING, 1901 and 1913-17.**

Year.	Dredging.			Towing Dredged Material.		
	Tons Dredged.	Total Expenditure.	Expenditure per Ton.	Miles run Towing.	Total Expenditure in Towing.	Expenditure per Mile Towing.
	Tons.	£	Pence.	Miles.	£	Pence.
1901 ...	317,500	3,696	2.79	29,277	2,849	23.35
1913 ...	1,875,925	28,104	3.59	28,317	5,976	48.22
1914 ...	1,852,500	29,079	3.77	45,724	8,271	43.41
1915 ...	1,561,500	27,937	4.29	48,982	9,949	48.06
1916 ...	2,092,918	28,253	3.24	46,581	11,268	58.05
1917 ...	1,938,130	31,697	3.93	43,847	11,950	65.41

3. **The Melbourne Harbour Trust.**—This Trust was constituted under an Act passed in 1876, as a result of public agitation and demands extending over a period of thirty-four years to the effect that the cost of landing goods should be reduced and the delays in receiving goods should be abolished. Both demands arose from the fact that vessels of a draught greater than twelve feet had to discharge in the bay into lighters.

(i.) *Constitution of the Trust.* The Harbour Trust Act was originally drafted on the lines of similar institutions in Great Britain, such as the Thames Conservancy, the Mersey Harbour Board, and the Clyde Trust. Under the Act of 1876, as amended in 1883, the number of Commissioners was fixed at seventeen. By an Act No. 2449 (1912), the constitution of the Trust was altered to a Commission of five members elected by the



Governor-in-Council, consisting of a chairman, who devotes his whole attention to the business of the Trust, and four others representing the interests of shipowners, exporters, importers, and primary producers.

(ii.) *Works Undertaken by Trust in the River and in the Port.* In 1890 a consolidating Act was passed, and the borrowing powers of the Trust were increased to £2,000,000, and subsequently by Act No. 2449 to £3,000,000. The river was widened from Queen's Bridge to the Bay to about 300 feet, while the depth has been gradually increased until at the present time it is twenty-six feet at low water. A total of 10.39 miles of wharves and piers are in use in the River, Victoria Dock, Williamstown and Port Melbourne. Most of these wharves in the river and dock carry sheds with a total length of 17,394 feet, covering an area of 878,928 square feet. The new pier in Victoria Dock, now complete, is included in these figures.

(a) *The Coode Canal.* In 1889 the canal across the flats below Fishermen's Bend was completed at a cost of £96,000. The length of the canal is 2002 yards, the distance from Queen's Bridge to the river entrance being thereby reduced from seven miles to five and three-quarter miles, and the navigation being greatly facilitated. This channel, which is called the Coode Canal, has been widened 164 feet, thus making its total width 487 feet, and its width at low water 430 feet. At the present time there is a depth of 26 feet at low water for a width of 250 feet.

(b) *The Victoria Dock.* This dock, four miles up the river, and opened in 1892, has an area of eighty-two acres and a depth of thirty feet at low water. The entrance to the dock is 160 feet wide. There are 11,760 feet of wharfage including that of the new central pier, and the total cost, including wharves, sheds, approaches thereto and new pier was, to 31st December, 1917, £705,441. The sheds have a total length of 6818 feet, and cover an area of 381,096 square feet. The new central pier is 1631 feet long and 250 feet wide, with a 57-foot roadway in the centre. There are four cargo sheds on this pier, two being 480 feet by 60 feet, and two 486 feet by 60 feet. It is proposed to erect two others each 486 feet long. The expenditure on this work to 31st December, 1917, amounted to £178,261.

(iii.) *Works in the Bay.* Prior to 1879 all the mail steamers and vessels of heavy draught had to lie at anchor in the bay, and there discharge into lighters. One of the first works undertaken by the Commissioners was to make the railway piers at Williamstown available to these vessels. This work was completed at a cost of £256,160. In 1893 a channel over 8000 feet long and 600 feet wide was dredged, running in a southerly direction from Port Melbourne Railway Pier and having a navigable depth of thirty feet o.l.w. The cost of this work was £218,379. A new railway pier was completed at Port Melbourne in 1915. Its length is 1902 feet, with a width of 185 feet, and the average depth of water is 37 feet. Two shelter sheds provide accommodation, and there are ten travelling gangways to facilitate the landing of passengers so as to avoid crossing the railway lines on the pier level.

(iv.) *Dredging.* The total quantity of material raised by the dredging and excavation done in the improvement of the river and bay amounts to nearly 61 million cubic yards.

During the ten years ending 31st December, 1917, the average cost of dredging per cubic yard was 2.19 pence and the cost of towing and depositing 4.72 pence, not allowing for depreciation of plant. The Trust has expended £334,774 in reclaiming land within its jurisdiction. The amount of material raised annually is now about 2,761,000 cubic yards.

(v.) *Financial Operations.* The revenue of the Trust is obtained from wharfages and tonnage rates, rents and license fees from land and ferries, and other license fees. One-fifth\* of the revenue of the Trust is paid to the consolidated revenue of Victoria. The following table gives particulars of the revenue and expenditure of the Trust from 1913 to 1917 inclusive:—

\* Limited by Act 2449 to £60,000 per annum for five years from 1st January, 1913.

**MELBOURNE HARBOUR TRUST.—REVENUE AND EXPENDITURE, 1913 to 1917.**

Particulars.	1913.	1914.	1915.	1916.	1917.
<b>REVENUE.</b>					
	£	£	£	£	£
Rates, rents, etc. ... ..	336,037	349,461	306,034	311,395	312,654
Interest ... ..	665	2,284	1,293	170	31
Other receipts ... ..	1,949	8,172	7,957	11,109	7,610
<b>Total ... ..</b>	<b>338,651</b>	<b>359,917</b>	<b>315,284</b>	<b>322,674</b>	<b>320,295</b>
<b>EXPENDITURE.</b>					
	£	£	£	£	£
Management and general expenses ...	35,753	42,460	46,257	56,265	49,205
Interest ... ..	71,081	83,620	86,567	88,372	93,996
<b>Total ... ..</b>	<b>106,834</b>	<b>126,080</b>	<b>132,824</b>	<b>144,637</b>	<b>143,201</b>
Less standing charges added to works ...	18,718	21,936	23,823	21,135	19,632
<b>Total ... ..</b>	<b>88,116</b>	<b>104,144</b>	<b>109,001</b>	<b>123,502</b>	<b>123,569</b>
Wharfage and other refunds ... ..	1,112	1,531	1,620	1,140	1,378
Charges remitted on troopships ... ..	...	4,532	3,166	...	...
Consolidated revenue of Victoria ... ..	60,960	60,000	60,000	60,000	60,000
Flotation of loan expenses ... ..	...	5,289	5,011	...	1,005
Redemption of loans expenses ... ..	...	...	925	...	...
Maintenance... ..	63,911	50,661	55,520	53,375	70,112
<b>Total expenditure ... ..</b>	<b>214,099</b>	<b>226,157</b>	<b>235,243</b>	<b>238,017</b>	<b>256,064</b>
<b>Surplus on revenue account ... ..</b>	<b>124,552</b>	<b>133,760</b>	<b>80,041</b>	<b>84,657</b>	<b>64,231</b>
Less depreciation and renewals account and sinking fund ... ..	29,188	30,058	30,415	51,364	51,747
<b>Net surplus on revenue account ...</b>	<b>95,364</b>	<b>103,702</b>	<b>49,626</b>	<b>33,293</b>	<b>12,484</b>
<b>CAPITAL EXPENDITURE.</b>					
	£	£	£	£	£
Land and property ... ..	46,007	5,534	2,060	1,316	588
Deepening waterways ... ..	49,620	96,198	93,615	82,429	50,871
Wharves construction... ..	115,244	87,885	120,627	105,803	62,246
Approaches construction ... ..	16,354	7,029	10,921	8,960	6,201
Other harbour improvements ... ..	2,713	1,376	4,275	35,946	26,923
Floating plant ... ..	9,744	33,452	3,112	25,190	3,814
General plant ... ..	2,910	3,364	4,107	2,853	1,728
Stock account ... ..	44,572	32,070	25,451	21,784	4,686
<b>Total ... ..</b>	<b>287,164</b>	<b>266,908</b>	<b>264,168</b>	<b>284,281</b>	<b>157,057</b>

4. **Fremantle Harbour Trust.**—Under the provisions of an Act passed in 1902, a Harbour Trust was constituted for the general administration of Fremantle harbour, and since January, 1903, the Trust has had full control of all the affairs of the harbour,

and undertakes the duties of wharfingers, and the receiving, sorting, storing, delivering, and handling of all cargo between vessels and the owners of the goods. The works, which were commenced in 1892, were designed with the object of forming a safe and commodious harbour within the mouth of the Swan River, so as to admit vessels at all states of the tide, and thus enable cargo to be loaded and discharged at the quays and goods-sheds on the river banks. Two ocean moles have been thrown out from the north and south heads, the former being 3450 feet and the latter 2040 feet long. A channel, 450 feet wide and 30 feet deep at low water, has been blasted and dredged through the rock which formerly crossed the estuary to the river to give access to the harbour basin, which has a width of 1400 feet and a depth of 30 feet at low water and is upwards of a mile in length, and wharves and goods-sheds have been constructed along the reclaimed foreshore on both sides of the harbour. The depth of water in the entrance channel and inner harbour is now being increased to 36 feet, and will eventually be made 40 feet below lowest low water datum. At the present time all the European mail boats and equally large vessels which make Fremantle the first and last port of call in Australia, are able to enter and leave the harbour in all weather and at all tides day or night. The quays on both sides of the inner harbour basin are equipped with electric and steam cranes, and there is also a complete installation of electric elevators and conveyors for stacking and shipping bagged grain and flour. All berths are laid with railway rails. For the year ended 30th June, 1917, the total revenue of the Trust was £176,414, and the expenditure £94,777. The gross amount paid to the Treasury for the year was £83,355, being interest £62,737, sinking fund £17,925, and surplus revenue account £692.

**5. Hobart Marine Board.**—The Hobart Marine Board was established in 1858, and consists of nine wardens, elected by the shipowners, importers and exporters of the port. To meet the requirements of the large steamers visiting the Commonwealth, extensive harbour improvements have been completed. The Ocean wharf and pier has a length of 1150 feet, with a depth of water from 36 feet at the inner to 60 feet at the outer end, while other piers afford accommodation for the largest vessels visiting Australia.

The total capital debt on properties in connection with the Harbour Trust vested in the Board is £106,400. The interest paid in 1917 amounted to £4256, and the contributions to sinking fund, £1020. The Board also transferred £938 from revenue to the Harbour Improvements Account. The receipts and expenditure of the Board for the last five years were as follows :—

#### HOBART MARINE BOARD.—RECEIPTS AND EXPENDITURE, 1913-17.

Year.	RECEIPTS.				EXPENDITURE.			
	General.	Harbour Improvements, Debentures, etc.	Light-house Fund.	Total.	General.	Harbour Improvements.	Light-house Fund.	Total.
	£	£	£	£	£	£	£	£
1913 ...	21,343	138,000	10,634	69,977	<sup>2</sup> 20,453	35,917	11,948	68,318
1914 ...	24,772	26,000	11,481	62,253	<sup>3</sup> 24,956	29,241	13,047	67,244
1915 ...	23,448	5,264	...	28,712	<sup>4</sup> 23,096	6,983	...	30,079
1916 ...	22,800	6,062	...	28,862	<sup>6</sup> 21,803	7,801	...	29,604
1917 ...	17,294	6,627	...	23,921	<sup>7</sup> 17,247	5,212	...	22,459

<sup>1</sup> Including £8000 from General Account. <sup>2</sup> Including £4000 voluntary contribution to Sinking Fund. <sup>3</sup> Including £8000 transferred from the General Account to the Harbour Improvements Account. <sup>4</sup> Including £1500 transferred from General Account to Harbour Improvements. <sup>5</sup> The Commonwealth Government took over control of Ocean lights from 1st July, 1915. <sup>6</sup> Including £4000 debentures purchased. <sup>7</sup> Including £938 transferred from General Account to Harbour Improvements.

**6. Launceston Marine Board.**—The Board was formed in 1858 and consists of thirteen members, elected on the municipal franchise, with special residential conditions. The principal work of the Board is in connection with the straightening, deepening, and widening of the River Tamar, the distance from the wharves to the open sea being 40 miles.

Wharves to the length of 6702 feet have been constructed, the depth at some of them being 40 feet s.l.w. The total capital debt on 31st December, 1917, was £204,539, of which £157,301 was incurred on the Tamar Improvement Scheme. The revenue for 1917 was £28,296 and the expenditure £25,880.

**7. Geelong Harbour Trust.**—This Trust was incorporated in 1905, and consists of three Commissioners appointed by the Government of Victoria. To the 31st December, 1917, the Trust had borrowed £575,000. The sinking fund at the same date stood at £17,725. The revenue receipts for the year 1917 were £32,376 and the disbursements £39,380.

**8. Rockhampton Harbour Board.**—The Board consists of eleven members elected by the municipalities and shires of the Central Division of Queensland. The principal items of export by water in 1917 were—wool, 50,100 bales; preserved and frozen meats, 9837 tons; blister copper, and concentrates, 6646 tons; and gold, £326,253 in value. For the year 1917 the receipts were £34,964 and the expenditure was £30,220, including £7048 for redemption and interest. The total of the net registered tonnage entering the port in 1917 was 563,539.

**9. Bundaberg Harbour Board.**—The principal port in Queensland for the shipment of sugar is Bundaberg. The Harbour Board consists of nine members, representing the district shire councils and the shipowners and exporters, with one Government nominee.

The total exports for the year ending 31st December, 1917, amounted to 31,182 tons, as against 22,188 tons for the previous year, shewing an increase of 8994 tons. The principal items of export were:—Raw sugars, 14,471 tons; refined sugars, 12,254 tons; syrups and molasses, 998 tons; rum and spirits, 1705 tons; copper ores, 472 tons. The revenue for 1917 amounted to £5887, as against £5202 for 1916; the expenditure for 1917 was £7138 as compared with £6114 for 1916. Dredging resulted in 89,300 tons of silt, etc., being lifted and deposited at sea, but only about four months of the year were occupied in this work.

**10. Cairns Harbour Board.**—The Cairns Harbour Board consists of twelve members, three representing the town of Cairns and the other nine the surrounding shire councils. For the year ended 31st December, 1917, the cash receipts from harbour and berthage dues and miscellaneous items amounted to £24,315, while the revenue from taxes and fixed rates was £22,502. The total income amounted to £24,343. The principal items of export were:—Raw sugar, timber, maize, copper, and fruit.

**11. Bunbury (Western Australia) Harbour Board.**—The Bunbury Harbour Board was constituted in 1909, and consists of five members appointed by the Government. The jetty has berthage accommodation for eight steamers, and the depth of water for loading thereat ranges from 18 to 27 feet. Electric and steam gantry cranes are available at the deeper berths.

The capital expenditure for the year ending 30th June, 1917, was £37,526, making the total capital expenditure to that date £309,095. The revenue for the year was £11,417 and the expenditure £5790, the balance being paid into Consolidated Revenue to meet interest and sinking fund. The export tonnage for the year was made up as follows:—Jarrah timber, 67,044 loads of 50 cubic feet; wheat, 21,770 tons; Collie coal (bunkers), 8715 tons; wool, 2876 bales; and miscellaneous goods, 676 tons; the total export value being £492,000. The total import tonnage was 6981 tons, the total cargo tonnage dealt with during the year ended 30th June, 1917, amounting to 150,458 tons.

**12. Burnie and Table Cape (Tasmania) Marine Board.**—While the existing works accommodate steamers of 4000 to 5000 tons, which visit the port regularly, they are insufficient for the rapidly increasing traffic in produce, ores and timber from the north-west and west coast district of Tasmania. A scheme is, therefore, being carried out by which the port will eventually be capable of taking any ships trading in the Commonwealth. A breakwater is being constructed 1200 feet in length with a depth alongside of 40 feet at low water. On 31st March, 1917, 1010 feet of this breakwater had been constructed. It is intended later on to increase the length to 4000 feet and to enclose 300 acres of deep

water space, of which 100 acres will have a depth of nearly 45 feet. The expenditure on that portion of the scheme at present under construction will be £200,000, including a wharf 500 feet long, with a depth of 36 feet at low water. The revenue for the year 1917 was £10,415, and the expenditure £14,371, including £8978 interest on construction loan.

### § 5. Fire Brigades.\*

1. **New South Wales.**—Reference has been made in the section of this book dealing with the subject of *Private Finance* (see page 832) to the constitution of the Board of Fire Commissioners of New South Wales, which has now superseded the Metropolitan and all other Fire Brigade Boards in that State.

(i.) *Receipts and Disbursements of Board of Fire Commissioners of New South Wales.* The subjoined table shews the actual receipts and disbursements of the Board for the past five years:—

#### NEW SOUTH WALES BOARD OF FIRE COMMISSIONERS.—RECEIPTS AND DISBURSEMENTS FOR SYDNEY FIRE DISTRICT, 1913-17.

Year.	Receipts.						Disbursements.
	From Government.	From Municipalities.	From Fire Insurance Companies.	From Firms.	From other Sources.	Total.	
	£	£	£	£	£	£	£
1913 ...	25,586	25,586	25,404	182	2,270	79,028	76,853
1914 ...	29,200	29,200	28,966	234	1,773	89,373	88,208
1915 ...	29,071	29,071	28,161	410	1,749	88,462	96,146
1916 ...	29,071	29,071	28,883	188	2,205	89,418	98,934
1917 ...	34,283	34,283	33,562	721	4,103	106,952	103,539

With reference to the preceding table, under the "Fire Brigades Act 1909," by which the New South Wales Board of Fire Commissioners was constituted and which came into operation on 1st January, 1910, insurance companies do not now, as formerly, return the amount of their risks, but give in lieu thereof the amount of premiums received, which forms the basis of their contribution towards the revenue of the Board. By this Act also, firms which effect insurances with companies not registered in New South Wales are likewise required to make contributions on account of the premiums paid to such companies, which is the first instance of this class of insurer being compelled to share the expense of local advantages, which had hitherto been available free of cost. A fuller description of the principal provisions of this Act will be found in previous issues of this book (see Year Book No. 5, page 990). The Sydney fire district includes the City of Sydney and suburbs, comprising a total area of 232 square miles. On the 31st December, 1917, the Board had under its control in this district 62 stations, 320 permanent men, 170 partially paid firemen, 14 steam and 32 motor fire engines, 78 horses, 139,100 feet of hose, and 459 telephone fire-alarms. The length of wire used for telephone lines was 1106 miles.

2. **Victoria.**—Under the Fire Brigades Act of 1890 a metropolitan fire district and nine country fire districts were established, the former being placed under the control of a Metropolitan Fire Brigades Board, and the latter under the control of a Country Fire Brigades Board.

(i.) *Metropolitan Fire Brigades Board.* The metropolitan fire district originally comprised the area included in the several municipalities within a radius of ten miles from the Melbourne General Post Office, but this area has since being extended in certain directions so as to include the greater part of the Shire of Moorabbin and also the township of Mordialloc. The Board is composed of nine members, of whom three are appointed by the Governor-in-Council, three by the municipal councils, and three by the insurance companies. On the 30th June, 1918, the Board had under its control

\* See Section XXI. § 6, Fire Insurance, p 832.

43 stations, 243 permanent men, 111 partially-paid firemen, 39 special service firemen, 9 steam fire engines, 7 petrol motor fire engines, 52 other petrol motor appliances, 9 horses, 111,051 feet of hose, and 314 fire-alarm circuits having 989 street fire alarms, of which 967 contained telephones. The Government, the insurance companies and the municipalities in which the Board operates contribute equally to the cost and maintenance of the brigade. The following table gives particulars as to the financial operations of the Board during each year from 1913 to 1917-18 inclusive :—

**VICTORIA.—REVENUE AND EXPENDITURE OF METROPOLITAN FIRE BRIGADES BOARD, 1913 to 1917-18.**

Particulars.	1913.	1914.	1915.	1916.	1917-18.
<b>ORDINARY RECEIPTS.</b>					
	£	£	£	£	£
Contributions ...	66,238	66,954	77,794	84,583	82,308
Receipts for services ...	5,941	8,241	6,634	7,595	6,064
Interest and sundries ...	3,669	3,234	9,957	3,913	3,626
<b>Total ...</b>	<b>75,848</b>	<b>78,429</b>	<b>94,385</b>	<b>96,091</b>	<b>91,998</b>
<b>ORDINARY EXPENDITURE.</b>					
	£	£	£	£	£
Salaries ...	47,210	50,966	51,304	59,184	58,900
Interest and sinking fund ...	8,357	9,432	11,442	13,330	13,610
Other expenditure ...	20,281	18,031	31,639	23,577	25,057
<b>Total ...</b>	<b>75,848</b>	<b>78,429</b>	<b>94,385</b>	<b>96,091</b>	<b>97,567</b>

(ii.) *The Country Fire Brigades Board.* This Board consists of nine members, of whom three are appointed by the Governor-in-Council, two are elected by the municipal councils of the districts where there are brigades registered under the Board, two by the fire insurance companies, and two by the registered fire brigades. At the end of the year 1917 there were 109 municipal councils, and seventy insurance companies included in the operations of the Act. All the brigades are volunteer brigades, but in the large towns permanent station-keepers and watchmen are employed. There were 131 registered brigades and 2985 registered firemen at the end of the year 1917.

For the year 1917 the receipts of the Country Fire Brigades Board amounted to £14,639, and the expenditure to £14,572.

3. *Queensland.*—In the year 1917 there were twenty-nine fire brigades organised in various towns in Queensland. The revenue of these brigades is derived chiefly from grants from the Government, from municipalities, and from the insurance companies, generally in equal proportions, and the following table gives these particulars for the year 1917 :—

**QUEENSLAND.—FIRE BRIGADES, 1917.**

Receipts.	Amount.	Expenditure.	Amount
	£		£
From Government ...	8,625	Salaries and wages ...	14,873
„ Local authorities ...	8,716	Building, repairs, etc....	491
„ Insurance companies ...	8,606	Plant, stores, clothing, etc.	4,501
„ Other sources ...	619	Other ...	5,298
<b>Total ...</b>	<b>26,566</b>	<b>Total ...</b>	<b>25,163</b>

At the end of the year 1917 the fire brigades staffs comprised 82 permanent men, 247 partially paid, and 104 volunteers. The Metropolitan Brigade at Brisbane and the South Brisbane brigade protect an area of  $9\frac{1}{2}$  square miles; their joint staffs comprise 68 men. They have three steam engines, three motor turbines, one chemical motor, nine reels, consisting of four horse, two motor, and three hand reels, and 23,155 feet of hose. There are 14 telephone fire alarms and 198 call points.

4. **South Australia.**—The Fire Brigades of South Australia are managed by a Board consisting of five members, one being nominated by the Government, one by the Adelaide city council, one by the other metropolitan and country municipalities, and the other two by the contributing insurance companies. The Board is incorporated under the Fire Brigades Act 1913. The revenue of the Board is derived by contributions of three-ninths by the Government, four-ninths by the insurance companies, and two-ninths by the city of Adelaide and the other municipalities subject to the Act, the contribution for 1917 amounting to £26,284. Brigades are established in the following municipalities, viz., Adelaide, Kensington and Norwood (including St. Peter's), Unley, Port Adelaide, Glenelg, Gawler, Kapunda, Moonta, Kadina, Port Pirie, Port Augusta and Thebarton. The strength of the brigades consists of 91 permanent firemen and 32 auxiliary firemen. The plant consists of five steam fire engines, one motor engine, nine motor hose carriages, one floating fire engine, 7 hose reels, and 17 horses. The number of calls received during the year 1917 was 325, of which 14 were to fires of a serious nature. Of the total calls, 176 were in the metropolitan district.

5. **Western Australia.**—Under the Fire Brigades Act 1898, fire brigades were established in a number of the more important centres of population in the State. These brigades were under the control of local boards, and were in some cases municipal and in others volunteer.

An Act to make further provision for the protection of life and property from fire came into operation on the 2nd April, 1917, and is called the Fire Brigades Act 1916. It provides that every municipal or road board district shall be a fire district for the purposes of such Act, under the control of the Western Australian Fire Brigades Board. Formerly, under the District Fire Brigades Act 1909, which was repealed by the 1916 Act, the whole State was divided into two fire districts only. Provision is also made in the later Act for the amalgamation of two or more municipal or road board districts into one fire district. The Board is elected biennially and is constituted as follows:—Two members nominated by the Government, one of whom shall be the President; one member elected by the council of the municipality of the City of Perth; one member elected by the municipal and road board districts between Fremantle and Midland Junction, excluding the City of Perth; one member elected by the municipal and road board districts between Southern Cross and Leonora (Eastern Goldfields District); one member elected by the remainder of the municipal and road boards districts in the State under the operation of the Act; two members elected by the insurance companies; and one member elected by the Volunteer Fire Brigades. The income of the Board is derived as follows:—Two-eighths from the Government, three-eighths from the local authorities and three-eighths from the insurance companies. In regard to the revenue derived from the local authorities it is provided that the local authority in each district shall only contribute three-eighths of the expenditure in such district. Under the 1909 Act the amount levied upon each local authority was a pro-rata proportion of the three-eighths of the total estimated expenditure in the State, based on the valuation of the property within each local authority's district. The receipts for the year 1917 amounted to £35,477, and the expenditure to £32,329.

The whole of the brigades throughout the State are now controlled by this Board, and number two purely permanent, ten permanent and partially paid, six permanent and volunteer, one partially paid, and twenty-three purely volunteer brigades; making a total of forty-two. The staff includes a chief officer, deputy-chief officer, third officer, motor engineer, electrical engineer, 12 other officers, 66 permanent firemen, 48 partially-paid firemen, and 399 volunteer firemen.

6. **Tasmania.**—Under the present system, the Government, the City Council, and the Fire Insurance Companies contribute equally to the annual expenditure of the Hobart Fire Brigade. There are volunteer brigades under the control of local boards in most of the larger centres of population. The expenditure for the year amounted to £3474.

### § 6. Local Government Finance.

1. **Introduction.**—In the preceding parts of this section certain particulars have been given regarding local authorities in each individual State. It is proposed to give here in a comparable form for each State particulars regarding the financial operations of local governing bodies. The areas controlled by these bodies are variously known in the several States as cities, towns, boroughs, shires, municipalities, municipal districts, and road districts. The particulars given in the tables in the two next paragraphs relate to financial years ending as follow:—New South Wales: for the calendar year 1916. Victoria: 30th September, 1916, except Melbourne, 31st December, and Geelong, 31st August, 1916. Queensland: calendar year 1916. South Australia: Corporations, 30th November, and district councils, 30th June, 1916. Western Australia: 31st October, 1916, except road districts, 30th June, 1916. Tasmania: calendar year 1916.

2. **Number, Revenue, Expenditure, and Valuation of Local Authorities.**—The following table gives particulars of the number, revenue, expenditure, and valuation of local authorities in each State and in the Commonwealth during the year 1916. It should be noted that, excepting in Tasmania, the metropolitan water supply systems are not under municipal control; the particulars given of revenue and expenditure for the five States other than Tasmania do not, therefore, include revenue and expenditure on account of these systems.

#### NUMBER, REVENUE, EXPENDITURE, AND VALUATION OF LOCAL AUTHORITIES (a) IN EACH STATE, 1916.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wlth.
No. of local authorities (a)	321	190	186	183	143	50	1,072
RECEIPTS.							
Rates—	£	£	£	£	£	£	£
General ...	2,114,182	1,346,439	654,328	236,265	202,564	49,279	4,603,057
Other (b) ...	181,678	279,743	249,767	89,500	68,398	137,268	1,006,354
Government grants ...	389,833	74,372	53,221	57,935	33,859	12,753	621,973
Loans (c) & other sources	1,061,396	553,673	149,500	94,271	476,078	219,272	2,554,190
Total ...	3,747,089	2,254,227	1,106,816	477,971	780,899	418,572	8,785,574
EXPENDITURE.							
Works, services, etc. ...	2,722,267	1,486,488	844,970	296,896	480,482	342,873	6,173,976
Interest on loans and overdrafts ...	400,933	262,760	18,150	13,900	82,376	72,877	1,084,104
Redemptions, sinking funds, etc. ...		101,461	33,809	11,917	52,340	33,581	
Administration ...	307,643	206,353	132,627	57,716	57,860	37,532	799,733
Other ...	142,725	230,905	141,721	80,080	111,642	24,114	731,187
Total ...	3,573,568	2,287,967	1,171,277	460,511	784,700	510,977	8,789,000
VALUATIONS.							
Capital value of property	£194,964,738	326,415,110	62,280,061	92,272,929	26,817,864	34,825,058	737,575,760
Annual value of property	(e)	17,319,418	(e)	4,668,868	1,520,135	1,717,878	(e)

(a) Including particulars for all areas controlled by local governing bodies responsible for the construction and maintenance of roads and streets, such areas being variously known in the several States as cities, towns, boroughs, shires, municipalities, road districts, etc. (b) Exclusive of rates for water supply and sewerage in metropolitan and most other principal towns, such rates being collected by special boards or general Government. (c) Exclusive of loans in connection with extraordinary works of construction. (d) Unimproved capital value. (e) Not available. (f) Excluding District Road Boards.



3. **Local Government Loans, 1916.**—The following table gives particulars for each State of loans raised by local authorities during the year 1916, of loans current at the end of that year, of liability on account of interest and sinking fund, and of loans maturing during 1916 :—

**PARTICULARS OF LOANS RAISED BY LOCAL AUTHORITIES, 1916.**

Particulars.	N.S.W.	Victoria.	Q'land.	S.A.	W.A.	Tas.	C'wealth.
	£	£	£	£	£	£	£
Loans from general Government—							
Raised during year ...	...	183,548	48,557	...	125	33,596	265,826
Current at end of year ...	...	504,465	448,977	...	83,723	601,299	1,638,464
Loans from other sources—							
Raised during year ...	552,974	316,764	...	21,660	111,426	310,295	1,313,119
Current at end of year ...	8,820,836	5,364,795	957,039	355,784	1,814,984	1,203,451	18,516,889
Total—							
Raised during year ...	552,974	500,312	48,557	21,660	111,551	343,891	1,578,945
Current at end of year ...	8,820,836	5,869,260	1,406,016	355,784	1,898,707	1,804,750	20,155,353
Current loans, exclusive of those obtained from general Government, raised within the C'wealth	7,996,881	5,364,795	...	355,784	1,333,684	384,291	15,435,435
Annual liability on account interest	(a)	250,985	17,173	14,703	85,371	84,102	(a)
Total sinking fund at end of year	(a)	793,279	101,755	23,061	279,804	184,364	(a)
Amount loans maturing during year							
Redeemed ...	...	...	(a)	10,750	30,257	157,418	(a)
Renewed ...	...	...	(a)	...	...	...	(a)

(a) Not available.

## SECTION XXVII.

## INDUSTRIAL UNIONISM AND INDUSTRIAL LEGISLATION.

## § 1. Development of Trade Unions in Australia.

1. **Historical Development of Trade Unionism in Australia.**—A special article, reviewing the development of trade unionism from its inception, appeared in Year Book No. 9, pp. 937-41.

2. **Registration under Trade Union Acts.**—The benefits conferred by registering trade unions under the Trade Union Acts in force in the various States are not held in much repute; consequently the statistics of registered trade unions of employees not only do not represent the position of unionism, but, in addition, the statistics themselves for past years are so defective as to be practically valueless. The particulars furnish no reliable indication of the numerical and financial position of trade unions. Some of the registered unions fail to supply returns; this non-supply may lead to cancellation of the registration. Some of the unions have obtained the cancellation of their certificates of registration, the apparent reason being that they proposed registering under the Commonwealth Conciliation and Arbitration Act or a State Arbitration Act. In Queensland, some of the largest labour unions withdrew from registration during 1911, mainly on account of the necessity for closer restriction of their objects as set forth in their rules, consequent on legal decisions affecting trade unions. In Victoria, only seven unions of employees are registered, and in South Australia sixteen unions were registered at the end of 1916. Particulars relating to membership and financial position of many of these unions were not furnished. It will be seen, therefore, that the available information is too meagre for statistical purposes. In the last issue of the Official Year Book, a table was published, shewing available particulars regarding the number, membership and financial position of trade unions registered under Trade Unions Acts as at the end of 1915.

3. **Registration under Industrial Arbitration Acts.**—Western Australia and New South Wales up to 30th June, 1908, were the only States with Industrial Arbitration Acts under which industrial associations could be, and actually were, registered. The number of registered unions in New South Wales shewed a gradual increase from 1902 to 1907, the figures in the latter year being 109 unions of employers, with 3165 members, and 119 unions of employees, with 88,075 members. Under the Industrial Disputes Act, which succeeded the Arbitration Act of 1901, it was not necessary to furnish the information. Since the Act of 1908 industrial organisation proceeded rapidly, owing to a

general desire on the part of the workers to obtain the status necessary to entitle them to the advantages offered by the Act. The Act of 1908 was repealed by that of 1912, and in 1912 there were 117 industrial unions of employers and 192 industrial unions of employees on the register. On the 31st August, 1914, there were 105 industrial unions of employers and 160 industrial unions of employees registered. On the 18th April, 1918, there were 109 industrial unions of employers, and 144 industrial unions of employees on the register. Thirty-one employers' unions had been reported "defunct," but had not been formally removed from the register, while the names of 58 employees' unions had not been formally removed from the industrial register, although their registrations as trade unions had been cancelled. In Western Australia, the employers' unions numbered 45, with 441 members, in 1904; 59 unions, with 520 members, in 1905; 57 unions, with 534 members, in 1906; 56 unions, with 552 members, in 1907; 48, with 409 members, in 1908; 47, with 408 members, in 1909; 46, with 444 members, in 1910; 46, with 554 members, in 1911; 49, with 749 members, in 1912; 48, with 581 members, in 1916; and 52, with 810 members, in 1917. From 1904 to 1908 unions of employees were in a fairly stationary condition. Since 1909, however, there has been a rapid expansion. At the end of 1904 and 1905 there were 140 unions, with 15,743 and 15,461 members respectively; in 1906 there were 130 unions, with 16,015 members; in 1907, 121 unions, with 14,544 members; in 1908, 121 unions, with 15,187 members; in 1909, 122 unions, with 17,282 members; in 1910, 130 unions, with 20,429 members; in 1911, 152 unions, with 28,934 members; in 1912, 158 unions, with 30,453 members; in 1916, 134 unions, with 25,403 members, and in 1917, 137 unions, with 26,359 members. These figures include councils and associations. Registration under Commonwealth legislation began in 1906. In that and the four following years, there was but one union of employers; another was registered in 1911. The unions of employees registered were 20 in 1906, with 41,413 members; 24, with 57,306 members, in 1907; 37, with 69,536 members, in 1908; 7, with 14,161 members, in 1909; 10, with 3760 members, in 1910. Twenty-four unions of employees were registered in 1911. The membership given above is that at time of registration. At the end of 1912 there were three employers' organisations, with 351 members, and 96 employees' organisations, with 245,735 members, on the register under the Commonwealth Conciliation and Arbitration Act. On the 31st December, 1916, there were six organisations of employers, with 1375 members, and 106 organisations of employees, with 413,356 members on the register.

**4. Types of Trade Unions in Australia.**—The trade unions in Australia are very diverse in character, and range from the small independent association to the large interstate organisation, which, in its turn, may be merely a branch of a British or international union. Broadly speaking, there are four distinct classes of labour organisations, viz.:—(i.) the *local independent*, (ii.), the *State*, (iii.) the *inter-State*, and (iv.) the *Australasian or International*, but a number of variations occur from each of these classes. The leading characteristics of each of these types were briefly outlined in Labour Report No. 2 (pp. 7 to 9).

**5. Total Number of Unions, 1917.**—As already stated, the figures for trade unions registered under the Acts do not represent the position of unionism in Australia. In 1912 the Labour and Industrial Branch of the Commonwealth Bureau of Census and Statistics was established, and by the cordial co-operation of the officials of the labour organisations, comprehensive figures relating to the development of organised labour are now available. The following table gives particulars of the number of trade unions, the number of branch unions, and the number of members in each State, the Northern Territory and the Commonwealth at the end of 1917:—

**TRADE UNIONS, BRANCH UNIONS, AND MEMBERS, STATES, NORTHERN  
TERRITORY, AND COMMONWEALTH, 1917.**

State or Territory.	Number of Separate Unions.	No. of Branches.	No. of Members.
New South Wales ... ..	220	765	248,851
Victoria ... ..	156	353	148,730
Queensland ... ..	96	291	75,393
South Australia ... ..	93	98	45,400
Western Australia ... ..	108	195	33,263
Tasmania ... ..	71	76	10,886
Northern Territory ... ..	3	...	1,664
<b>Total ... ..</b>	<b>747</b>	<b>1,778</b>	<b>564,187</b>
<b>Commonwealth* ... ..</b>	<b>389†</b>	<b>2,136</b>	<b>564,187</b>

\* Allowing for interstate excess. † Number of distinct organisations and interstate groups of organisations in the Commonwealth—not the total number of organisations, which are practically independent and self-governing. (See below.)

In the preceding table the number of separate unions in each State refers to the number of unions which are represented in each State, exclusive of branches within a State. That is to say, each union represented in a State is only counted once, regardless of the number of branches in that State. Except in the last line, the number of branches indicates the number of branches of State head offices, which may, of course, themselves be branches of an interstate or larger organisation. In taking the total number of separate unions in the Commonwealth (see last line but one), it is obvious that, in the case of interstate and similar unions, there will be duplication, since each such union is counted once in each State in which it has any branches. In the figures given in the last line allowance has been made for this duplication. State branches of interstate or federated unions, as well as sub-branches within a State, are included under the heading "Branches" in the third column—last line. It should be observed, however, that the scheme of organisation of these interstate or federated unions varies greatly in character, and the number of separate Commonwealth unions does not fairly represent the number of practically independent organisations in Australia. In some of these unions the State organisations are bound together under a system of unification with centralised control, while in others the State units are practically independent and self-governing, the federal bond being loose and existing only for one or two specified purposes. It may be seen, therefore, that there are 389 distinct organisations and interstate groups of organisations in the Commonwealth, having 2136 State branches and sub-branches, and a total of 564,187 members.

**6. Number of Unions and Membership in Industrial Groups, 1917.**—The following table shews the number of unions and members thereof in each State at the end of the year 1917. The number of unions specified for each State refers to the number of different unions represented in each State; that is to say, interstate or federated unions are counted once in each State in which they are represented, but sub-branches within a State are not counted. In order to avoid disclosing the affairs of individual unions, in cases where there are only either one or two unions in any group in a State, the membership is not given separately.

### NUMBERS OF UNIONS AND MEMBERSHIP IN INDUSTRIAL GROUPS IN EACH STATE, DECEMBER, 1917.

Industrial Groups.	N.S.W.	Vic.	Q'ld.	S.A.	W.A.	Tas.	Nth'n Ter.	Total.
NUMBER OF UNIONS.								
I. Wood, Furniture, etc. ...	4	3	2	3	4	3	...	19
II. Engineering, Metal Works, etc. ...	22	19	12	10	7	4	1	75
III. Food, Drink, Tobacco, etc. ...	23	17	4	9	13	8	...	74
IV. Clothing, Hats, Boots, etc. ...	7	7	2	3	3	4	...	26
V. Books, Printing, etc. ...	8	10	2	2	5	2	...	29
VI. Other Manufacturing ...	30	21	6	13	9	5	...	84
VII. Building ...	15	13	10	8	9	4	1	60
VIII. Mines, Quarries, etc. ...	13	3	2	1	4	2	...	25
IX. Railway & Tramway Services ...	12	5	4	4	5	4	...	34
X. Other Land Transport ...	9	4	3	2	2	2	...	22
XI. Shipping, etc. ...	22	7	17	10	8	9	...	73
XII. Pastoral, Agricultural, etc. ...	3	3	1	1	1	1	...	10
XIII. Domestic, Hotels, etc. ...	6	5	1	2	5	...	...	19
XIV. Miscellaneous ...	46	39	30	25	33	23	1	197
<b>Total ...</b>	<b>220</b>	<b>156</b>	<b>96</b>	<b>93</b>	<b>108</b>	<b>71</b>	<b>3</b>	<b>747</b>
NUMBER OF MEMBERS.								
I. Wood, Furniture, etc. ...	6,726	4,526	•	1,041	1,459	829	...	†14,581
II. Engineering, Metal Works, etc. ...	23,482	11,408	4,708	4,434	2,481	510	•	47,023
III. Food, Drink, Tobacco, etc. ...	19,933	11,111	5,562	2,290	1,284	949	...	41,229
IV. Clothing, Hats, Boots, etc. ...	9,372	15,164	•	1,576	587	408	...	†27,107
V. Books, Printing, etc. ...	4,989	3,875	•	•	467	•	...	11,401
VI. Other Manufacturing ...	15,087	10,454	925	1,871	1,473	208	•	30,017
VII. Building ...	15,354	10,382	3,741	3,534	1,204	557	•	34,772
VIII. Mines, Quarries, etc. ...	21,264	3,214	•	•	4,065	•	...	34,029
IX. Railway & Tramway Services ...	37,580	17,664	10,668	5,660	7,030	918	...	79,520
X. Other Land Transport ...	5,488	4,560	2,035	•	•	•	...	14,728
XI. Shipping, etc. ...	23,401	15,149	5,319	5,241	1,579	1,057	...	51,746
XII. Pastoral, Agricultural, etc. ...	14,639	11,128	•	•	•	•	...	40,735
XIII. Domestic, Hotels, etc. ...	5,208	2,781	•	•	1,370	•	...	10,163
XIV. Miscellaneous ...	46,328	27,314	26,743	12,178	8,641	2,105	•	123,309
<b>Total ...</b>	<b>248,851</b>	<b>148,730</b>	<b>75,393</b>	<b>45,400</b>	<b>33,263</b>	<b>10,886</b>	<b>†1,664</b>	<b>564,187</b>

\* Not available for publication separately; included in State and Commonwealth totals.  
 † Incomplete, see footnote. ‡ Membership of Groups II., VII., and XIV. included in the South Australian numbers.

Particulars are given in Labour Report No. 8 (pp. 12 and 13) of the number of male and female members of unions and the percentage of such members on the total number of adult wage earners. Information is also given below as to the development of trade unionism since 1901. Other tables shew the classification of unions according to number of members and the number of central labour organisations.

**7. Development of Trade Unions in Australia, 1901 to 1917.**—The following table shews for the years specified the total number of trade unions in the Commonwealth, and the number and membership of those unions for which returns are available. The estimated total membership of all unions for years prior to 1912 is shewn in the last line:

#### NUMBER AND MEMBERSHIP OF TRADE UNIONS IN COMMONWEALTH, 1901 to 1917.

Particulars.	1901.	1906.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.
Total number of unions	198	302	482	573	621	710	712	713	705	747
No. of unions for which membership available	139	253	442	542	621	710	712	713	705	747
Membership of these unions ...	68,218	147,049	277,047	344,999	433,224	497,925	523,271	528,031	546,556	564,187
Estimated total membership of all unions	97,174	175,529	302,119	364,732	...	...	...	...	...	...

Note.—Particulars for 1907, 1908, and 1909 are given in Labour Report No. 2, p. 13.

These figures shew that while the number of unions in 1917 was more than double the number in 1906, the estimated membership during the same period increased nearly fourfold. During the last nine years the estimated annual increase in membership was greatest in the year 1912, when it amounted to no less than 68,492, and least in 1915, when it was only 4760.

8. **Interstate or Federated Unions, 1917.**—The following table gives particulars as to the number and membership of interstate or federated unions in 1917 :—

**NUMBER AND MEMBERSHIP OF INTERSTATE OR FEDERATED UNIONS IN THE COMMONWEALTH, 1917.**

Particulars.	Unions Operating in—					Total.
	2 States.	3 States.	4 States.	5 States.	6 States.*	
Number of Unions ...	18	11	18	14	33	94
Number of Members ...	18,286	18,649	76,981	90,068	252,319	456,303

\* Three unions in this group have, in addition to branches in each of the six States, a branch in the Northern Territory.

It appears, therefore, that 94 out of the 389 separate associations and groups of associations in the Commonwealth are organised on an interstate basis. The membership of these 94 unions amounts to 456,303, or no less than 80.9 per cent. on the total membership (564,187) of all unions.

9. **Central Labour Organisations.**—In each of the metropolitan towns, as well as in a number of other industrial centres, delegate organisations, consisting of representatives from a group of trade unions, have been established. Their revenue is raised by means of a per capita tax on the members of each affiliated union. In most of the towns where such central organisations exist, the majority of the local unions are affiliated with the central organisation, which is usually known as the Labour or the Trades Hall Council or the Labour Federation. In Western Australia a unified system of organisation extends over the industrial centres throughout the State. In this State there is a provincial branch of the Australian Labour Federation, having a central council and executive, and metropolitan and branch district councils, to which the local bodies are affiliated. The central council, on which all district councils are represented, meets periodically. In the other five States, however, the organisation is not so close, and though provision usually exists in the rules of the central council at the capital town of each State for the organisation of district councils or for the representation on the central council of the local councils in the smaller industrial centres of the State, the councils in each State are, as a matter of fact, independent bodies.

The table below shews the number of metropolitan and district or local labour councils, together with the number of unions and branches of unions affiliated therewith, in each State at the end of the year 1917 :—

**CENTRAL LABOUR ORGANISATIONS.—NUMBER, AND UNIONS AFFILIATED, 1917.**

Particulars.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'w'th.
No. of Councils ...	4	5	2	4	11	1	27
No. of Unions and Branch Unions Affiliated ...	163	192	46	82	171	18	672

The figures given in the preceding table as to number of unions do not necessarily represent separate unions, since the branches of a large union may be affiliated to the local trades councils in the several towns in which they are represented.

Between the trade union and the central organisation of unions may be classed certain State or district councils, organised on trade lines and composed of delegates from separate unions, the interests of the members of which are closely connected by reason of the occupations of their members, such, for example, as delegate councils of bakers, bread carters and mill employees, or of unions connected directly or indirectly with the iron, steel, or brass trades, or with the building trades.

## § 2. Laws Relating to Conditions of Labour.

1. **Tabular Statement of Statutes affecting Labour.**—The statutes in force at the end of 1917 in the several States of the Commonwealth, which, more or less directly, affect the general conditions of labour, are shewn in the table below. Where merely an incidental reference to labour conditions is made in a statute, as is the case with, e.g., the Hawkers and Pedlars Act 1892, of Western Australia, or the Firms Registration Act 1899, of South Australia, or the Health Acts generally, the statute is not included in the table.

LABOUR LAWS.—TABLE OF STATUTES IN FORCE IN AUSTRALIAN STATES, 1917.

New South Wales.	Victoria.	Queensland.	South Aust.	Western Aust.	Tasmania.
1. <i>General</i> — Factories & Shops Act 1912 Early Closing 1899, 1900, 1906, 1910 and 1915 Saturday Half Holiday 1910 Clerical Workers 1910 Eight Hours Act 1916 Sunday Trading (Refreshment Rooms) 1916	Factories and Shops 1915	Factories and Shops 1900, 1908, 1914 and 1916	Factories 1907, 1908, 1910 and 1915 Early Closing 1911 and 1912	Factories 1904 (2) and 1911 Early Closing 1902, 1904 (2), 1911 and 1912 (Consolidated)	Factories 1910, 1911 and 1917 Chimney Sweepers 1882 Shops Closing 1911 and 1913
2. <i>Prevention of Strikes and Regulation of Rates of Wages</i> — Industrial Arbitration 1912, 1916	Factories and Shops (as above)	Industrial Arbitration Act 1916	Factories Acts 1907-15 Industrial Arbitration Act 1912, 1915, 1916 Mining 1893	Industrial Arbitration Act 1912 Mines Regulation 1906 and 1911 Coal Mines Regulation 1902, 1915 Mining 1904	Wages Boards 1910, 1911, 1913, 1915 and 1917
3. <i>Mining Industry</i> — Mines Inspection 1901, 1904 Coal Mines Regulation 1912	Mines 1915 Coal Mines Regulation 1915	Mining 1898, 1901, 1902, 1912 (2), 1914, 1915 Mines Regulation 1910 and 1912			Mining 1917 Mines and Works Regulation 1915
4. <i>Security of Wages to Wage Earners</i> — Contractors' Debts 1897	Employers and Employees 1915	Contractors' & Workmen's Lien 1906 Wages 1870 and 1884 Wages (as above)	Workmen's Liens 1893-6 Wages Attachment 1898	Workmen's Wages 1898, 1899, 1900, 1904	—
Attachment of Wages Limitation 1900	—			—	Wages Attachment 1900

## LABOUR LAWS—TABLE OF STATUTES.—Continued.

New South Wales.	Victoria.	Queensland.	South Aust.	Western Aust.	Tasmania.
*Truck 1900 " 1901	—	Factories and Shops (as above)	Factories (as above)	*Truck 1899 * " 1900 * " 1904	—
Bankruptcy (preference wages) 1898 to 1899	Insolvency 1915	Insolvency 1874 " 1876	Insolvency 1886 " 1887 " 1896 " 1915	Bankruptcy 1892 " 1898	Bankruptcy 1870 Bankruptcy 1899
5. Accommodation, Homes, etc.—					
Shearers' Accommodation 1901	Shearers' Hut Accommodation, 1915	Workers' Accommodation 1915	Shearers' Accommodation 1905 and 1916	Shearers' Accommodation 1912	—
—	Closer Settlement (Workers' Homes) 1915	Miners' Homestead Leases 1913	—	—	—
—	—	Workers' Dwellings 1909, 1912, and 1914.	—	Workers' Homes 1911 & 1912 (2) and 1914 Navigation 1904 Merchant Shipping Act Application 1903	—
6. Inspection of Machinery, etc.—					
Scaffolding and Lifts Act 1912 Boiler Inspection Regulations (under Factories and Shops Act 1912)	Boilers' Inspection 1915 Lifts Regulation 1915	Inspection of Machinery 1915, and Inspection of Scaffolding 1915	Steam Boilers and Engine Drivers 1911 and 1913 Lifts Regulation 1908 Scaffolding Inspection 1907 and 1908	Inspection of Machinery 1904 and 1911	Inspection of Machinery 1902 " " 1909 " " 1913
7. Trade Unions—					
Trade Unions 1881	Trade Unions 1915	Trade Union 1915	Trade Unions 1876	Trade Unions 1902	Trade Unions 1889
8. Relations of Masters and Servants—					
Masters & Servants 1902 Apprentices 1901 Apprentices (Amendment) Act 1915	Employers and Employees 1915 Masters and Apprentices 1915 Servants' Registry Offices 1915	+Apprentices 1828 " 1844 Master and Servants 1861	Masters & Servants 1878 Apprentices (War Service) Relief Act 1915 Employees' Registry Office Act 1915	Masters and Apprentices 1873 Masters & Servants 1892 Employment Brokers 1909 and 1912 (Consolidation)	Masters & Servants 1856 " " 1882 " " 1884 " " 1887
9. Liability in case of Accidents—					
—	Employers and Employees 1915	—	Employers' Liability 1884-9	Employers' Liability 1894	Employers' Liability 1895, 1898 and 1903
Workmen's Compensation 1916	Workers' Compensation 1915	Workers' Compensation 1916	Workmen's Compensation 1911	Workers' Compensation 1912	Workers' Compensation 1910

\* The "Truck" system, as applied to labour, was one by which the master obtained the labour of his servants in exchange for goods or commodities on which it is stated he generally secured a profit. The system is now almost entirely suppressed by the various statutes enacted. + New South Wales Acts unrepealed in Queensland after Separation in 1859.



**2. Provisions and Administration of the Acts.**—For information regarding the benefits sought, and the provisions for the registration, administration, and record-keeping, etc., under these Acts, reference should be made to Year Book No. 9, pp. 949 to 952.

**3. Registered Factories.**—The number of establishments registered under Factories Acts is shewn below:—

**FACTORIES REGISTERED UNDER ACTS, 31st DECEMBER, 1917.**

State.	No. of Registered Factories.	Numbers Employed.		
		Males.	Females.	Total.
New South Wales†...	8,065	63,895	28,757	92,652
Victoria ...	7,772	60,684	36,877	97,561
Queensland*	2,486	20,252	7,807	28,059
South Australia†	1,892	13,416	5,247	18,663
Western Australia†...	1,129	8,269	2,852	11,121
Tasmania†	923	6,200	1,566	7,766
Commonwealth ...	22,267	172,716	83,106	255,822

\* At 31st March, 1917.

† At 31st December, 1916.

‡ At 30th June, 1917.

**4. Comparative Statement of Factories Law in Australia.**—The tables on pp. 994-9 shew at a glance the chief provisions of the Factories and Shops Acts in the Commonwealth.

**5. Mining Acts.**—Under the Mining Acts the employment underground of all females and of boys under fourteen years is prohibited. A minimum age, usually seventeen, is fixed for employment as lander or bracedman at plats and landing places; no lander, bracedman, underground worker, or man in charge of motive power may be employed more than eight hours a day. A large number of scientific provisions for the protection of the lives and health of miners is also inserted in the Acts. Enginedrivers must hold certificates of competency. Persons may be licensed to certify to the condition of boilers. Provision is made to enable injured persons or the relatives of persons killed to recover damages if the injury or death results from a breach of the regulations referred to above. Inspection of mines is fully provided for. Sunday labour is forbidden. In New South Wales and (since 1st February, 1910) Victoria still more advanced mining legislation exists; numerous sections are designed to ensure the well-being of the workers, such as limitation of hours, etc.

**6. Employers' Liability and Workmen's Compensation Acts.**—In each of the States, Acts have been passed allowing compensation to workers who have been killed or injured while engaged in industrial occupations. In the Commonwealth, one Act provides for compensation to all workers employed by the Commonwealth, and another to all seamen working on ships registered in Australia. A conspectus of these Acts is given on pages 998 to 1003.

## A.—EMPLOYMENT IN FACTORIES.—COMPARATIVE VIEW OF

HEADING.	NEW SOUTH WALES.	VICTORIA.	QUEENSLAND.
<i>Principal Acts</i>	Factories and Shops 1912.	Factories and Shops 1915.	Factories and Shops 1900. " " 1908. " " 1914†
<i>Application of Acts—Limitations</i>	Whole State proclaimed factories district. Not applicable where all the workers are members of the same family. Not applicable to woolsheds, dairies, or ships. Governor may exempt any factory or class of factory.	Whole State. Not applicable to dairying, agricultural, horticultural, viticultural and pastoral occupations. Not applicable to laundries attached to prisons or religious and charitable institutions.	Only in areas proclaimed. Not applicable to prisons, reformatories, dairies, mines, agricultural buildings, and domestic workshops. Governor may exempt partially or wholly any factory or class of factories in a given district.
<i>Definition of Factory—By Nos. Employed</i>	Four or more.	Four or more.	Two or more (including occupier).
" Asiatics "	One or more Chinese.	One or more Chinese.	One Asiatic.
" Power used "	Steam or mechanical.	Steam or mechanical.	Steam or mechanical.
" Special classes included "	Bakehouses. Laundries and dyeworks.	Bakehouses, laundries, dyeworks, quarries, clay-pits, furniture. Gas and electric light, etc., works.	Bakehouses, laundries.
<i>Administration</i>	Minister of Labour.	Minister of Labour.	Minister for Public Works.
<i>Inspectorate</i>	Inspectors with full powers of entry, examination and enquiry.	Inspectors with full powers of entry, examination and enquiry.	Inspectors with full powers of entry, examination and enquiry.
<i>Registration</i>	Seven days' prior notice.	Fourteen days' notice after occupation. Annual re-registration.	Seven days' prior notice.
<i>Outwork</i>	Occupier of factory to keep record, showing places where work done and rates of payment.	Occupier to keep record of description, quantity, remuneration, names and addresses. Out-workers must register in clothing, wearing-apparel, or boot trades.	Sub-contractors' premises subject to factory regulations. Occupier to keep records showing places, description, and quality of work; nature and amount of remuneration paid. Out-workers must register. Sub-letting forbidden.
<i>Meals in Workroom</i>	Minister may forbid while work is going on; he may require provision of a suitable eating-room.	Forbidden while work going on, unless Chief Inspector permits. Forbidden if dangerous trade conducted.	Inspector may forbid meals being taken in factories; he may require provision of suitable eating room.
<i>Sanitary, Health and Safety Provisions</i>	Factories to be clean, wholesome, and well ventilated. Over-crowding forbidden. Unhealthy persons under sixteen may be suspended from daily work. Avoidance of infection prescribed. Factories to be thoroughly cleaned once in fourteen months. Bakehouses and furniture factories not to be used as sleeping places. Seats to be provided for females. Proper necessary precautions to be taken against fire, and efficient fire escapes to be provided.	Factories to be clean, wholesome, and well ventilated. Over-crowding forbidden. Factories to be thoroughly cleaned once in fourteen months. Bakehouses to be washed once every six months. Factories and bakehouses not to be used as sleeping places. Wet spinners must be protected. Efficient fire escapes to be provided, and fire appliances kept ready. Doors, etc., to be kept free from obstruction.	Factories to be clean, wholesome, and well ventilated. Over-crowding forbidden. Suspension of work by unhealthy persons may be enforced. Avoidance of infection prescribed. Fresh drinking water to be provided. Factories to be thoroughly cleaned once in twelve months. Bakehouses not to be used as sleeping places. Seats to be provided for females. Proper necessary precautions to be taken against fire.
<i>Dangerous Machinery</i>	Must be fenced. Employment of women and boys forbidden at certain machines.	Must be fenced. Employment of women and boys restricted. First-aid ambulance-chest to be kept on premises.	Must be fenced.*
<i>Minimum Wage per week</i>	4s. No premiums or bonus on behalf of apprentices in the making of wearing apparel is permitted.	2s. 6d. No premium is to be demanded from female apprentices and improvers in clothing trades, or any apprentice or improver employed in a shop.	5s. No premium is permitted from apprentices without permission of Inspector.

\* See Machinery and Scaffolding Act 1915.

† Hairdressers' shops only.

## LEADING FEATURES OF ACTS IN FORCE IN AUSTRALIA, 1917.

SOUTH AUSTRALIA.	WESTERN AUSTRALIA.	TASMANIA.
Factories 1907, 1908, 1910, and 1915.	Factories 1904. .. 1911 (2).	Factories 1910, 1911 and 1917.
In metropolitan area and such other places as determined by Parliament. Not applicable to domestic servants and agricultural and pastoral pursuits.	In districts proclaimed. Not applicable to mines, dairies, ships, prisons, reformatories, domestic (other than Asiatic) workshops. Governor may exempt any factory or class of factories.	Whole State. Not applicable to mines, ships, prisons, reformatories, rural industries, charitable institutions. Governor may exempt any factory.
Any one person.  Laundries, dyeworks.	Six or more.  One Asiatic. Steam or mechanical. Bakehouses, laundries.	Four or more.  One Asiatic. Steam or mechanical over 1 h.p. Bakehouses, quarries.
Minister of Industry.	Honorary Minister.	Chief Inspector.
Inspectors with full powers of entry, examination and enquiry.	Inspectors with full powers of entry, examination and enquiry.	Inspectors with full powers of entry, examination and enquiry.
Twenty - one days' after occupation.	Prior notice. Annual re-registration if Asiatics employed	Twenty-one days' prior notice and annual re-registration.
Occupier to keep record. Out-workers to register names and addresses.	Occupier to keep record of names and addresses, and quantity and description of work done. Sub-letting forbidden.	Occupier to keep record of names and addresses, and quantity and description of work done, also of hours worked and wages paid.
Minister may forbid meals in factories carrying on noxious trades; he may require provision of suitable eating-room.	Forbidden for women and boys, except with Inspector's written permission.	Forbidden where employees working. In certain factories meal room to be provided.
Factories to be kept wholesome, clean, and well ventilated. Over-crowding forbidden. Factories to be thoroughly cleaned once in fourteen months. Adequate protection to be made against fire.	Factories and connected yards to be clean, wholesome, and well-ventilated. Over-crowding forbidden. Unhealthy persons may be forced to suspend work. Goods, clothing, etc., to be disinfected where necessary. Fresh drinking water to be provided. Thorough cleaning to be regularly done. Bakehouses not to be used as sleeping places. Efficient fire escapes to be provided and other necessary protection to be made against fire.	Factories to be clean, wholesome, and well ventilated. Overcrowding forbidden. Interior walls and ceiling surfaces in factories may be required to be cleaned once in fourteen months. Factories not to be used as sleeping places. Doors, etc., to be kept clear of obstructions, and fire-prevention appliances kept ready for use. Doors to open outwards. Alternate means of escape to be provided.
Must be fenced. Employment of children under sixteen may be forbidden.	Must be fenced.* Inspector may prohibit as dangerous machine.* Employment of females and boys forbidden?	...
4s. No premium is to be paid by female apprentices in clothing trades.	...	4s. for first year at trade. No premium in respect to employment is permitted.

\* See Inspection of Machinery Act 1904.

## B.—RESTRICTIONS AS TO EMPLOYMENT OF WOMEN

HEADING.	NEW SOUTH WALES.	VICTORIA.	QUEENSLAND.
* <i>Ordinary Age of Admission to Factory</i>	14	Boys 14 years Girls 15 years	14
<i>Maximum Working Hours of Women and Young Persons</i> { Per week .. day Maximum hours of continuous labour Interval	Boys under 16 and all females 48 hours ... Boys under 18 and all females 5 hours Do., $\frac{1}{2}$ hour	Boys under 16 and all females, 48 hours Do., 10 hours. Females under 18 or males under 16 as type- setters, 8 hours Boys under 18 and all females, 5 hours. Do., $\frac{1}{2}$ hour	Boys under 16 and all females, 48 hours ... Do., 5 hours Do., $\frac{1}{2}$ hour
<i>Prohibited Hours of Work</i>	Boys under 16 and all females 6 p.m. to 6 a.m.	Girls under 16, 6 p.m. to 6 a.m. Males under 16 and all fe- males, after 9 p.m.	Girls under 18, 6 p.m. to 6 a.m. Boys under 16, 6 p.m. to 6 a.m. (Except by special ex- emption from Minister.)
<i>Overtime—</i> <i>Limitation—Per day</i> .. week .. year Continuous	Three hours Three consecutive days Thirty days	Ten hours per day not to be exceeded Fifty-seven hours per week not to be exceeded in more than eight weeks ...	Three hours { Two consecutive days Fifty-six hrs per wk. not to be exceeded. Forty days
<i>Overtime Pay</i>	Time and a-half	Wage workers, time & a-half Piece workers, additional 3d. per hour	Time and a-half, but not below 6d. per hr. e e e e e e e e e e
<i>Prohibition of Employment after Childbirth</i>	4 weeks	...	...
<i>Restrictions and Prohibitions of Employment affecting Women and Young Persons in Dangerous Trades.</i>	Type-setting	...	Boys under 14; girls under 15
	Dry grinding and match dipping	Persons under 16†	Persons under 16
	Manufacture of bricks and tiles	Girls under 18	Girls under 16
	Making and finishing of salt	Girls under 18	Girls under 16
	Melting or annealing of glass	Boys under 16; girls under 18	Girls under 18
	Silvering of mirrors by mercurial process; manufacture of white lead	Persons under 18	Persons under 18
	Cleaning of machinery in motion, mill gearing, etc.	All females; boys under 18†	All females; boys under 18
	Charge of lift	All females; boys under 16‡	Persons under 18
	Laundries ...	...	...

\* The ages given are those at which admission to factory labour is unrestricted. In some States younger children are admitted if having passed school standards, or by special permit from the Minister or inspector.

## AND YOUNG PERSONS IN FACTORIES IN AUSTRALIA, 1917.

SOUTH AUSTRALIA.	WESTERN AUSTRALIA.	TASMANIA.
13	14	14
Boys under 16 and all females, 48 hours Do., 10 hours	Boys under 14 and all female 48 hours Do., 8½ hours	Boys under 16 and all females, 48 hours Females, 10 hours
Do., 5 hours	Do., 5 hours	Boys under 18 and all females, 5 hours
Do., ½ hour	Do., ½ hour	Females & young persons, 1 hour
Females, after 9 p.m. Boys under 16, after 9 p.m.	Females, 6 p.m. to 8 a.m., and after 1 p.m. on one day wkly. Boys under 14, 6 p.m. to 7.45 a.m., and after 1 p.m. on one day weekly.	Boys under 16 and all females, after 9 p.m. ...
...	Three hours	55 hours per week not to be exceeded. (Suspended in perishable material trades from December to April inclusive)
Seven hours per week	Two consecutive days	...
100 hours	Thirty days	200 hours
Time and a-quarter	Time and a-quarter	Time and a-quarter
...	4 weeks	...
Boys under 16 and all females not more than 8 hours per day, and not after 6 p.m. or before 6 a.m.	Girls under 15	Boys under 16 and all females not more than 8 hours per day, nor between 9 p.m. and 6 a.m.
Persons under 16	...	Persons under 16
Girls under 16	Girls under 16	Girls under 16
Girls under 16	Girls under 16	Girls under 16
Boys under 14; girls under 18	...	Females under 18
Persons under 18	All females; boys under 18	All females; boys under 18
All females; boys under 18	All females; boys under 18	...
All females; boys under 18	Females under 21; boys under 16	...
...	...	Girls under 16

† In N.S.W. this restriction applies also to casting from molten lead. ‡ In N.S.W. this restriction applies also to persons in charge of or attending to any engine or boiler. § In N.S.W. this restriction applies also to any machinery classed as dangerous.

## C.—EMPLOYMENT IN SHOPS.—COMPARATIVE VIEW OF LEADING

HEADING.	NEW SOUTH WALES.	VICTORIA.	QUEENSLAND.
<i>Acts</i>	As for factories Early Closing Act Minimum Wage Act	As for factories	As for factories
<i>Statutory Maximum Hours of Employment.</i> { (a) Male, adults (b) Females and Boys { per week per day Maximum continuously Interval	... Girls under 18, boys under 16, 52 hours Girls under 18, boys under 16, 9½ hours (except 1 day, 11½ hours) All females: 5 hours All females: ½ hour	52 hours per week (Fourth Schedule Shops 58 hours) 52 hours (Fourth Schedule Shops 56 hours) 9 hours (except 1 day, 12 hours) All persons: 5 hours All persons: ½ hour	53 hours per week do. Females and boys under 16, 9½ hours (except 1 day, 11½ hours) All persons: 5 hours All persons: ½ hour
<i>Maximum { per day Overtime { per year</i>	... ...	3 hours 25 days	3 hours 40 days
<i>General closing time</i>	4 days, 6 p.m.; 1 day, 10 p.m.; 1 day, 1 p.m.	4 days, 6 p.m. (outside Metropolitan district 4 days 7 p.m.); Saturdays, 1 p.m.; Fridays, 10 p.m.	4 days, 6 p.m.; 1 day, 9 p.m.; Saturdays (or other prescribed weekly holiday), 1 p.m.
<i>Exemption from closing time</i>	Certain shops	Businesses concerned with tobacco, books, stationery, confectionery, drugs and edibles, also pawnbrokers	Certain exempted shops
<i>Seats in Shops</i>	1 to 3 females	1 to 3 assistants	1 to 3 females

## D.—CONSPECTUS OF WORKMEN'S

HEADING.	NEW SOUTH WALES.	VICTORIA.	QUEENSLAND.	SOUTH AUSTRALIA.
<i>Name of Act.</i>	Workmen's Compensation Act 1916.	Workmen's Compensation Act 1915.	The Workers' Compensation Act 1916.	The Workmen's Compensation Act 1911.
<i>Definition of Employer.</i>	Includes any body of persons, corporate or incorporate, and the legal representative of a deceased employer.	Includes any body of persons, corporate or incorporate.	Includes persons, firms, companies and corporations employing workers.	Includes any body of persons, corporate or incorporate.
<i>Nature of Work to which Act applies.</i>	Any person who is under contract of service or apprenticeship, whether by way of manual labour, clerical work or otherwise.	Manual workers. Other workers with incomes up to £250.	Industrial, commercial, manufacturing, building, agricultural, horticultural, pastoral, mining, quarrying, engineering, or hazardous work.	Manual only, with incomes up to £5 a week.
<i>Workers expressly excluded.</i>	Casuals, persons whose remuneration exceeds £312 per annum.	Workers other than manual earning over £250. Police, outworkers, members of employer's family.	Casuals, police, subscribers to superannuation fund, members of employer's family.	Persons earning over £5 a week. Outworkers, members of employer's family, seamen whose injury occurs outside jurisdiction, agricultural, horticultural, viticultural, dairying or pastoral workers where machinery is not used, clerks, domestic servants.

## FEATURES OF ACTS IN FORCE IN AUSTRALIA, 1917.

SOUTH AUSTRALIA.	WESTERN AUSTRALIA.	TASMANIA.
Early Closing, 1911 and 1912	Early Closing, 1902, 1904 (2), and 1911	Factories, 1910, 1911, with amendments Shops Closing 1911, with amendments
...	56 hours per week	...
Boys and girls under 16, 52 hours	Boys under 16 & all females, 52 hours	Females and boys under 16, 52 hours
Boys and girls under 16, 9 hours (except 11 hours on 1 day)	Boys under 16 & all females, 9 hours (except 10½ hours on 1 day)	Females and boys under 16, 9 hours (except 12 hours on 1 day)
...	One hour interval between noon and 3 p.m. If open after 6.30 p.m., 1 hour for tea	Females and boys under 16, 5 hours
...		Females and boys under 16, ½ hour
3 hours 40 days	3 hours 12 days per half-year	3 hours } With consent of Chief 40 days } Inspector of Factories
4 days, 6 p.m.; 1 day, 9 p.m.; 1 day, 1 p.m.	4 days, 6 p.m.; 1 day, 9 p.m.; 1 day, 1 p.m. (Opening hour not earlier than 8 a.m.)	4 days, 6 p.m.; 1 day, 10 p.m.; 1 day, 1 p.m.
Certain classes of shops	Shops such as hairdressers, newsagents, tobacconists, and those selling drugs and edibles	Shops registered as small shops, and certain shops such as tobacconists, newsagents and those selling edibles
...	...	1 to 3 females

## COMPENSATION ACTS IN AUSTRALIA.

WESTERN AUSTRALIA.	TASMANIA.	COMMONWEALTH. (Employees.)	COMMONWEALTH. (Seamen.)
Workers' Compensation Act 1912.	The Workers' Compensation Act 1910.	Commonwealth Workmen's Compensation Act 1912.	Seamen's Compensation Act 1911.
Same as South Australia.	Same as South Australia.	The Commonwealth.	Same as South Australia.
Manual, clerical, or otherwise, with income up to £300 a year.	Manual in any railway, factory, mine, quarry or engineering work, or any other industry included by resolution of Parliament.	Manual, clerical, or otherwise.	Navigation or working of ships registered in Australia. Seamen shipped under Articles of Agreement in Australia while under Commonwealth law included.
Persons whose remuneration exceeds £300 a year. Casuals, police, outworkers, members of employer's family.	Casuals (defined as employed for not longer than 27 hours per week), manual workers earning over £156 a year.	Persons not employed in manual labour earning over £500 a year. Outworkers, naval and military forces on active service.	Seamen on vessels ordinarily propelled by oars, and those in naval or military service.

## CONSPECTUS OF WORKMEN'S

HEADING.	NEW SOUTH WALES.	VICTORIA.	QUEENSLAND.	SOUTH AUSTRALIA.
<i>Employer not liable to pay compensation for</i>	Injury disabling for less than one week.	Injury incapacitating for less than a week.	Injury incapacitating for less than three days.	First week of injury if disabled for less than two weeks.
<i>In event of insolvency maximum amount of compensation admitted as first charge on assets per individual.</i>	£200.	£200.	Insurance compulsory in State Accident Insurance Fund.	£100.
<i>Compensation in case of Death. If dependants left ...</i>	3 years' earnings, or £300, whichever larger; maximum, £500.	3 years' earnings, or £200, whichever is the larger; maximum, £500.	3 years' earnings, or £300, whichever larger; maximum, £600.	3 years' earnings, or £200, whichever larger; maximum, £300.
<i>If no dependants, maximum amount for medical attendance and funeral expenses.</i>	£20.	£50.	£50.	£20.
<i>Compensation in case of Incapacity Weekly payment ...</i>	Half average weekly earnings; maximum £2.	Half average weekly earnings; maximum, 30s.	Half average weekly earnings; maximum, £2, minimum, £1.	Half average weekly earnings; maximum, £1.
<i>Maximum total liability ...</i>	£750.	£500.	£750.	£300.
<i>Compensation of Workers over 60 years of age who have entered into an agreement.</i>				
<i>Death, with Dependants — Minimum Incapacity — Minimum weekly payment ...</i>	...	£50.	...	£50.
<i>Maximum total liability ...</i>	...	5s., or quarter of weekly earnings, whichever larger. £50.	...	5s. £50.
<i>Compensation for infirm workers who have entered into an agreement.</i>				
<i>Death, Minimum payment...</i>	...	£50.	...	£50.
<i>Incapacity — Minimum weekly payment</i>	...	5s., or quarter of weekly earnings, whichever larger.	...	5s.
<i>Maximum total liability ...</i>	...	£50.	...	£50.
<i>Compensation for workers under 21 years of age earning less than 20s. weekly.</i>				
<i>Weekly payment ...</i>	Average weekly earnings; maximum, 15s.	Average weekly earnings; maximum, 10s.	...	Average weekly earnings; maximum, 10s.
<i>Waiting time ...</i>	None.	One week.	Three days. Compensation from date of accident if incapacity lasts over three days.	One week. No compensation for first week unless incapacity lasts two weeks.



## COMPENSATION ACTS IN AUSTRALIA—Continued.

WESTERN AUSTRALIA.	TASMANIA.	COMMONWEALTH. (Employees.)	COMMONWEALTH. (Seamen.)
Same as South Australia.	Same as South Australia.	...	Same as South Australia.
£150.	£100.	...	Full amount.
3 years' earnings, or £300, whichever larger; maximum, £400.	3 years' earnings, or £100, whichever larger; maximum, £200.	3 years' earnings, or £200, whichever larger; maximum, £500.	3 years' earnings, or £200, whichever larger; maximum, £500.
£100.	£30.	£30.	£30.
Medical attendance up to £1. Half average weekly earnings; maximum, £2.	Half average weekly earnings; maximum, 30s.	Half average weekly earnings; maximum £2.	Half average weekly earnings; maximum, 30s.
£400.	£200.	...	...
£100.	£50.	...	(If seamen entitled to Commonwealth Old-age pension, amount of compensation and pension together not to exceed 30s. weekly.)
10s.	10s.	...	
£100.	£50.	...	
£100.	£25, or 39 times average weekly earnings, whichever larger.	...	...
10s.	5s., or quarter of weekly earnings, whichever larger.	...	...
£100.	£50.	...	...
Average weekly earnings; maximum, 20s.	Same as New South Wales.	Same as New South Wales.	Same as New South Wales.
Same as South Australia.	One week. No compensation paid for first week unless incapacity lasts two weeks.	None.	One week. No compensation for first week unless incapacity lasts two weeks.

# 1002 LEGISLATIVE REGULATION OF WAGES AND TERMS OF CONTRACT.

## CONSPECTUS OF WORKMEN'S

HEADING.	NEW SOUTH WALES.	VICTORIA.	QUEENSLAND.	SOUTH AUSTRALIA.
<i>Period after which lump sum can be substituted for weekly payment.</i>	Six months.	Six months.	Any time.	Six months.
<i>Tribunal, if claim not settled by agreement.</i>	Committee representative of employer and his workmen, if existing, or arbitration, or Judge of District Court.	Judge of County Court or Police Magistrate.	Insurance Commissioner, Industrial Referee, Supreme Court.	Arbitrator. If arbitrator not agreed on within one month, special Magistrate. Appeals to Supreme Court.
<i>Regulations for worker leaving the State in which he was injured.</i>	If permanent incapacity likely, quarterly substituted for weekly payments in case of worker ceasing to reside in the State.	Same as South Australia.	If permanent incapacity proved, 155 times weekly payments substituted for weekly payments in case of worker leaving Commonwealth.	If permanent incapacity likely, quarterly substituted for weekly payments in case of worker leaving State.
<i>Proceedings for compensation not maintainable unless commenced within</i>	Six months.	Six months.	Six months.	Six months.

7. **Other Acts.**—Other legislation regulating conditions of labour has been enacted by the States. The British *Conspiracy and Protection of Property Act* (38 and 39 Vic., c. 86) has been adopted in all the States except New South Wales and Queensland. Servants' registry offices are placed under administrative control, and the rates of commission chargeable are fixed by regulation. Power is given to workmen to attach moneys due to a contractor who employs them, in order to satisfy a claim for wages, such wages being made a first charge on moneys due to a contractor. Workmen are given a lien for wages over material whereon they are working, even if it becomes part of other property. This is in addition to the common law lien, which ceases when possession of the property is parted with. Workmen's wages are protected from attachment. In Victoria, provision is made for the compulsory resumption of suburban lands to provide workmen's homes.

8. **General Results of Industrial Legislation.**—The results of the legislation described must be sought in the Reports of the Inspectors of Factories of the several States. Generally speaking, the perusal of these reports and of the reports of Royal Commissions which have inquired into the working of the Acts, affords satisfactory evidence that the Acts have, on the whole, effected their objects.

## § 3. Legislative Regulation of Wages and Terms of Contract.

1. **General.**—Two systems, based upon different principles, exist in Australia for the regulation of wages and general terms of contracts of employment. A "Wages Board" system exists in Victoria and Tasmania, and an Industrial Arbitration Court in Western Australia. In the industrial legislation of New South Wales, Queensland, and South Australia, both systems are embodied, Industrial or Wages Boards, as well as Industrial Courts, being instituted. In Victoria, Wages Boards' decisions may be reviewed by the Court of Industrial Appeals. In New South Wales, Industrial Arbitration Acts of 1901 and 1905 instituted an Arbitration Court. This court expired on 30th June, 1908, having delivered its last judgment on the previous day. Wages Boards were substituted under the Industrial Disputes Act 1908, and subsequent years; while the Act of 1912 introduced the mixed system. The Industrial Arbitration (Amendment) Act, assented to on 22nd March, 1918, amends the law for the regulation of the conditions of industries and industrial arbitration. The Act provides for the establishment of a Board of Trade and of special and deputy Courts of Industrial Arbitration, and also for the appointment of Industrial Boards on the recommendation of the Court. There is also the Arbitration Court of the Commonwealth, which has power, however, to deal only with matters extending beyond the limits of a single State.

## COMPENSATION ACTS IN AUSTRALIA—Continued.

WESTERN AUSTRALIA.	TASMANIA.	COMMONWEALTH. (Employees.)	COMMONWEALTH. (Seamen.)
Six months.	Two weeks.	Six months.	Six months.
Local Court.	Commissioner (under Local Courts Act 1896) acting as Arbitrator.	Arbitrator or County Court.	Arbitrator or County Court.
Weekly payments continue in case of worker leaving State.	Same as South Australia.	If permanent incapacity likely, quarterly substituted for weekly payments in case of worker leaving Australia.	If permanent incapacity likely, quarterly substituted for weekly payments in case of worker leaving Australia.
Six months.	Six months	Six months.	Six months, or 18 months if ship lost at sea.

The chief aims of the Wages Board system are to regulate hours, wages, and conditions of labour and employment, by the determination of a Board usually brought into existence for any specified industry or group of industries by petition or application. Under the Industrial Arbitration Court system an industry does not technically come under review until a dispute has actually arisen. Most of the Acts, however, have given the President of the Court power to summon a compulsory conference. In Victoria, where the Wages Board system is in force, there is no provision against strikes, but in Tasmania, where that system has also been adopted, penalties are provided for a lock-out or strike on account of any matter in respect of which a Board has made a determination.

Particulars were given as to the historical development, mode of constitution and general provisions of Wages Boards and Arbitration Courts in Year Book No. 9, pages 960 to 966. These refer to the regulation of wages and working conditions, and the prevention and settlement of industrial disputes.

**2. Comparative Statement of Tribunals for Regulating Wages in Australia.**—The table on pages 1004 and 1005 shews at a glance the Acts which operate in fixing wages, the constitution and function of tribunals enacted under them, and the effect and extent of the tribunals' decisions. It will be seen that in all the States there is machinery for the regulation of wages.

**3. Movement Towards Uniformity.**—The wide difference between the development in the several States of the Commonwealth of the regulation by State institutions of the remuneration and conditions of the workers has given rise to a desire on the part of the Commonwealth Government to secure uniformity throughout Australia by any suitable and constitutional action on the part of the Commonwealth. The provisions of States' wages laws vary considerably. In New South Wales, Victoria, and Western Australia, considerable experience has been gained of their working. The system is newer in South Australia, Queensland, and Tasmania. The desirability for uniformity has, as already mentioned, been recognised by the New South Wales Arbitration Court, which refused the Bootmakers' Union an award which would increase the wages of its members to amounts exceeding those paid in Victoria in the same trade, the express ground of the refusal being that New South Wales manufacturers would be handicapped by the payment of a higher rate of wage than that prevailing in Victoria.

## TRIBUNALS FOR THE REGULATION OF

Particulars.	NEW SOUTH WALES.	VICTORIA.	QUEENSLAND.
<i>Name of Acts</i>	Industrial Arbitration Act 1912, 1916†	Factories and Shops Act 1915	Industrial Arbitration Act 1916
<i>Nature of Tribunals</i>	Court of Industrial Arbitration. Industrial Boards	Court of Industrial Appeals. Wages Boards	Industrial Court. Industrial Boards
<i>How Tribunals are brought into existence</i>	Industrial Court (Judge) constituted by Act. Industrial Boards by the Minister on recommendation of Industrial Court.	Court constituted by Acts. Wages Boards by Governor-in-Council on resolution of Parliament	Industrial Court constituted by the Act. Industrial Boards by Minister on recommendation of Court
<i>Scope of Acts</i>	To industrial groups named in Schedule to Act, and those added by Proclamation. Includes Government servants	To any process, trade, business, or occupation specified in a resolution. Government servants are not included	To all callings and all persons (including Government servants) except (1) State children; (2) domestic servants; (3) persons engaged in farming operations on dairy, fruit and agricultural farms
<i>How a trade is brought under review</i>	Reference by Court or Minister, or by application to the Board by employers (having not less than 20 employees) or industrial unions	Usually by petition to Minister	By submission to the Court by (1) the Minister or the Registrar; (2) an employer employing not less than 20 employees in any calling; and (3) not less than 20 employees in any calling
<i>President or Chairman of Tribunal</i>	Appointed by Minister on recommendation of Court.	Appointed by Governor-in-Council on nomination of Board, or failing that on nomination by Minister	Appointed by Governor-in-Council
<i>No. of Members of Tribunal</i>	Chairman, and 2 or 4 other members	Not exceeding 11 (including chairman)	Industrial Court, not exceeding 3, including president. Industrial Boards, 2 or 4 in addition to chairman
<i>How ordinary members are appointed</i>	Appointed by Minister on recommendation of Industrial Court	Nominated by Minister. But if one-fifth of employers or employees object, representatives are elected by them	Members of Industrial Court by Governor-in-Council. Members of Industrial Boards by employers and employees respectively
<i>Decisions — how enforced</i>	By Registrar and Industrial Magistrate	By Factories Department in Courts of Petty Sessions before Police Magistrates.	By Industrial Court on application of any party to the award or agreement, or Registrar, or Industrial Inspector
<i>Duration of decision</i>	For period fixed by Tribunal, but not more than 3 years.	Until altered by Board or Court of Industrial Appeals	12 months and thereafter, until altered by Board or Court
<i>Appeal against decision</i>	To Industrial Court against decision of Boards	To the Court of Industrial Appeals	To Industrial Court
<i>Is suspension of decision possible pending appeal?</i>	No; except by temporary variation of award by the Court	Yes; for not more than 12 months	Yes; for not more than 3 months
<i>Can Preference to Unionists be declared?</i>	Yes	No	Yes
<i>Provision against strikes and lockouts</i>	Strikes, penalty £50, registration as industrial union, and preference to unionists cancelled. Lockouts, penalty £1000, and registration as industrial union cancelled	Determination may be suspended by Governor-in-Council for any period not exceeding 12 months.	Penalties for strikes or lockouts, employer or industrial union, £100; other cases, £10
<i>Special provisions for Conciliation</i>	Special Commissioner.* Conciliation Committees for colliery and other districts. Registered agreements	None	Compulsory Conference. Registered agreements

\* Functions not now in operation.

† The Industrial Arbitration

WAGES IN TRADES IN AUSTRALIA, 1917.

SOUTH AUSTRALIA.	WESTERN AUSTRALIA.	TASMANIA.	COMMONWEALTH.
The Factories Acts 1907, 1908, 1910 and 1915. Industrial Arbitration Act 1912. Industrial Arbitration Act Amendment Acts 1915 and 1916.	Industrial Arbitration Act 1912	Wages Boards Acts 1910, 1911, 1913, 1915, and 1917.	Conciliation and Arbitration Act 1904-14. Arbitration (Public Service) Act 1911
Industrial Court. Wages Boards.	Arbitration Court	Wages Boards	Court of Conciliation and Arbitration.
Court constituted by Act of 1913. Wages Boards by the Governor-in-Council, pursuant to resolutions of Parliament	Constituted by the Act	By Governor-in-Council pursuant to resolutions of Parliament	Court of Record constituted by the Act
To processes, trades, etc., specified in Act, and such others as may be authorised by Parliament	All industrial occupations other than domestic service	To clothing and apparel trades and any other trades or groups or parts	Industrial disputes extending beyond limits of any one State or in Federal Capital or Northern Territories
Court—matters or disputes submitted by Minister, Registrar, employers or employees, or by report of Wages Board. Wages Boards by petitions, etc.	Industrial disputes referred by President or by an Industrial Union or Association	Usually by petition to Minister	Industrial disputes either certified by Registrar, submitted by organisation, referred by a State Industrial authority or by President after holding abortive Compulsory Conference
Court—President. Wages Board, appointed by Governor on nomination of Board, or failing nomination, a Stipendiary Magistrate	A Judge of the Supreme Court	A Police Magistrate appointed by the Governor	President
Court, President only. Wages Board, not less than 5 nor more than 11 (inclusive of chairman)	Three, including president	Chairman, and not less than four nor more than ten	President only
By Governor on nomination of employers and employees respectively	Appointed by Governor, President directly, and one each on recommendation of unions of employers and workers respectively	By Governor-in-Council on nomination by employers and employees	President appointed by Governor-General from Justices of High Court for a term of 7 years.
By Factories Department	By Arbitration Court on complaint of any party to the award or Registrar or an Industrial Inspector	By Chief Inspector under Factories Act	By proceedings instituted by Registrar, or by any organisation affected, or a member thereof
Until altered by Board or by order of Industrial Court	For period fixed by Court, not exceeding 3 years, or for 1 year and thenceforward from year to year until 30 days' notice given	Until altered by Board.	For period fixed by award, not exceeding 5 years
Industrial Court	No appeal except against imprisonment or a fine exceeding £20	To Supreme Court against validity of determination only	No appeal. Case may be stated by President for opinion of High Court
Yes	No suspension. Court has power to revise an award after the expiration of 12 months from its date	Yes	No appeal
No	No	No	Yes; ordinarily optional, but mandatory if in opinion of Court preference is necessary for maintenance of industrial peace or welfare of society
Penalty £500, or imprisonment for 3 months	Employer or Industrial Union, £100; other cases, £10.	Organisations, £500; individuals, £20	Penalty, £1000.
Compulsory Conference. Industrial Court. Registered agreements	Compulsory Conference. Registered agreements	None	Compulsory Conference. Court may temporarily refer to Conciliation Committee, Registered agreements

(Amendment) Act 1918 was assented to on 22nd March, 1918

**4. Constitution Alteration Proposals.**—Two proposed laws for the alteration of the constitutional powers of the Commonwealth in regard to industries and businesses were submitted to the people for acceptance or rejection on the 26th April, 1911. The first law proposed to amend section 51 of the Constitution Act (see p. 23 hereinbefore) so as to give the Commonwealth Government increased powers to deal with (a) trade and commerce, (b) corporations, (c) industrial matters, and (d) trusts and monopolies. The second law proposed to insert, after section 51 of the Constitution Act, a section empowering the Commonwealth Government to make laws with respect to monopolies. Neither of the proposals was approved by the people. Fuller particulars are given on page 922 of this book. At the general elections, held on 31st May, 1913, these and other matters were again submitted by referendum and again rejected.

## § 4. Operations under Wages Board and Industrial Arbitration Acts.

**1. General.**—Particulars regarding operations under the Commonwealth Arbitration Acts and the various State Acts for the regulation of wages, hours, and conditions of labour, shewing the number of boards authorised and constituted, and which had or which had not made any award or determination in each State; the number and territorial scope of awards or determinations, and the number of industrial agreements in force, were first compiled to the 31st December, 1913.\*

These particulars have from time to time been revised, and reviews to the end of approximately quarterly periods have been published in the periodical Labour Bulletins to the 30th June, 1917, and thereafter in the Quarterly Summaries to the 31st December, 1917. Information has also been compiled and included in the later issues of the Labour Bulletin and Quarterly Summary, respecting the estimated number of work-people affected by awards or determinations and industrial agreements in each State. In addition, a brief quarterly epitome has been given of the number of awards and determinations made and industrial agreements filed under the Act in force in each State and the Commonwealth Conciliation and Arbitration and the Commonwealth (Public Service) Arbitration Acts. The following tabular statement gives particulars of the operations in each State and under the Commonwealth Statutes during each quarter of the years 1916 and 1917 respectively:—

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\* Information as to the main provisions of the various Acts in force was given in Labour Bulletin No. 1, pp. 57 to 60.

**AWARDS AND DETERMINATIONS MADE AND INDUSTRIAL AGREEMENTS  
FILED IN EACH QUARTER OF 1916 and 1917.**

State and Commonwealth.	1st Quarter.		2nd Quarter.		3rd Quarter.		4th Quarter.		Full Year.	
	Awards or Determinations made.	Agreements Filed.	Awards or Determinations made.	Agreements Filed.	Awards or Determinations made.	Agreements Filed.	Awards or Determinations made.	Agreements Filed.	Awards or Determinations made.	Agreements Filed.
<b>1916.</b>										
N. S. Wales ...	28	7	53	14	53	14	66	14	200	49
Victoria ...	34	...	21	...	18	...	13	...	86	...
Queensland ...	11	2	26	27	18	8	14	5	69	42
S. Australia ...	5	3	7	2	10	...	7	1	29	6
W. Australia ...	3	2	6	3	1	3	4	5	14	13
Tasmania ...	3	...	7	...	3	...	1	...	14	...
Commonwealth ...	...	2	5	3	4	5*	5	11	14	21
<b>Total ...</b>	<b>84</b>	<b>16</b>	<b>125</b>	<b>49</b>	<b>107</b>	<b>30</b>	<b>110</b>	<b>36</b>	<b>426</b>	<b>131</b>
<b>1917.</b>										
N. S. Wales ...	35	14	23	11	31	7	19	11	108	43
Victoria ...	18	...	19	...	22	...	6	...	65	...
Queensland ...	15	3	6	12	21	16	21	11	63	42
S. Australia ...	13	...	11	...	11	1	4	2	39	3
W. Australia ...	...	1	2	11	...	8	2	8	4	28
Tasmania ...	1	...	...	...	3	...	3	...	7	...
Commonwealth ...	1	65†	10	5	12	9	10	56	33	135
<b>Total ...</b>	<b>83</b>	<b>83</b>	<b>71</b>	<b>39</b>	<b>100</b>	<b>41</b>	<b>65</b>	<b>88</b>	<b>319</b>	<b>251</b>

\* Including 1 agreement varied in respect to wages only. † Including 55 separate agreements made between the Australian Saddlery and Leather Workers' Trades Employees' Federation, and various employers.

Owing to the prevailing drought conditions and the advent of war during the year 1914, varying restrictive measures were introduced either for the suspension or curtailment of the operations of industrial tribunals in each of the States. During the second quarter of 1915 these restrictions were somewhat relaxed in New South Wales and Queensland, and early in the third quarter operations gradually assumed normal conditions in all the States. During the third and fourth quarters of 1915 greater activity was evidenced in each State, and this activity continued during the years 1916 and 1917. The number of awards and determinations (319) made by the Commonwealth Conciliation and Arbitration Court, the State Industrial Courts and Wages Boards during the year 1917, was lower than the number made during the previous twelve months, when 426 awards and determinations were issued. The number of industrial agreements entered into during 1917 was 251, as compared with 131 during the year 1916. The number of awards issued by the Commonwealth Conciliation and

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Arbitration Court was 33, as compared with 14 during the previous year. The number of industrial agreements filed under the provisions of the Commonwealth Act also shewed a large increase in comparison with the number filed during the previous year, the number filed during 1917 being 135, as against 21 during the year 1916.

### 2. Boards Authorised, and Awards, Determinations, and Agreements in Force.—

In the following table particulars are given for all States, excepting Western Australia, of the number of boards authorised and constituted, and including operations under the Commonwealth and the Western Australian Arbitration Acts, of the number of awards, determinations, and industrial agreements in force in all States at the 31st December, 1913 and 1914, and at quarterly intervals during the succeeding three years :—

#### PARTICULARS OF BOARDS AND OF AWARDS, DETERMINATIONS, AND INDUSTRIAL AGREEMENTS IN FORCE AT 31st DECEMBER, 1913 and 1914, AND AT QUARTERLY INTERVALS to 31st DECEMBER, 1917.

Dates.	Boards Authorised.	Boards Constituted.	Boards which had made Awards or Determinations.	Awards or Determinations in Force.†	Industrial Agreements in Force.
31st December, 1913* ...	504	501	387	575§	401
31st December, 1914* ...	553	544	478	576‡	369
31st March, 1915* ...	560	551	486	589‡	371
30th June, 1915* ...	568	557	495	638	481
30th September, 1915* ...	582	570	495	644	498
31st December, 1915* ...	573¶	554¶	498	663	546
31st March, 1916* ...	580	558	495	651	553
30th June, 1916* ...	589	571	512	678	581
30th September, 1916* ...	591	573	519	683	596
31st December, 1916* ...	594	572	525	706	609
31st March, 1917* ...	475**	470**	529	722	666
30th June, 1917* ...	476	471	530	714	663
30th September, 1917* ...	478	473	441**	734	666
31st December, 1917* ...	478	473	442	744	732

\* Details for each quarter have already been published in the issues of the Labour Bulletin to the 30th June, 1917, and thereafter in the issues of the Quarterly Summary. † Including awards made by Arbitration Courts. ‡ Owing to certain restrictions being imposed on the operations of Industrial Boards in each State, a number of awards which expired in New South Wales during these periods were not immediately reviewed. § Excluding awards or determinations which expired in New South Wales (under the Act of 1908) on 31st December, 1913. ¶ Owing to a number of awards made under the N.S.W. Industrial Disputes Act (1908) being still in force, the Boards constituted for such industries under the Industrial Arbitration Act (1912) had not made any awards. ¶ See remarks with respect to re-authorisation of Boards in New South Wales, Labour Bulletin No. 12, p. 47. \*\* In Queensland in pursuance of the provisions of the Industrial Arbitration Act of 1916 all Industrial Boards appointed under the Industrial Peace Act of 1912 were dissolved on the 12th January, 1917, with the exception of those which had matters pending or partly heard. At the 31st December, 1917, these latter Boards had also been dissolved. The work of the Boards appointed under the Industrial Peace Act is being undertaken by a Court of Arbitration constituted under the new Act.

It will be observed from the particulars set out in the above table that considerable expansion of the principle of the fixation of a legal minimum rate of wage and of working conditions took place during the four years ending 31st December, 1917. At the end of 1917, 169 additional awards or determinations were in force in the Commonwealth. The number of industrial agreements\* made and in force under the various Acts increased during the four years under review by 331.

In the following table, particulars are given for each State and the Commonwealth of the number of Boards authorised, etc., at the 31st December, of the years 1913 to 1917 inclusive :—

\* The registration of industrial agreements is not provided for under the Acts in force in Victoria and Tasmania, but such agreements may be registered and filed under the provisions of the Commonwealth Conciliation and Arbitration Act to operate in any or in all States.



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BOARDS AUTHORISED AND CONSTITUTED, AWARDS, DETERMINATIONS, AND AGREEMENTS IN FORCE AT 31st DECEMBER, 1913, 1914, 1915, 1916, and 1917.

Particulars.	At 31st Dec.	C'with.	N.S.W.	Vic.	Q'ld.	S.A.	W.A.	Tas.	Total.
<i>Boards Authorised, etc.*</i>	(1913 ...	...	216	135	75	56	...	23	505
	1914 ...	...	230	139	101	56	...	27	553
Boards authorised ...	1915 ...	...	226	147	112	56	...	32	573
	1916 ...	...	234	147	123	57	...	34	594
	1917 ...	...	237	149	21	57	...	33	478†
	1913 ...	...	223	132†	74	51	...	21	501
Boards constituted ...	1914 ...	...	238	135†	94	51	...	26	544
	1915 ...	...	226	142†	104	51	...	31	554
	1916 ...	...	234	143†	111	51	...	33	572
	1917 ...	...	237	147†	2†	55	...	32	473†
	1913 ...	...	123	123	74	47	...	19	386
Boards which had made Awards or Determinations	1914 ...	...	186	130	92	47	...	23	478
	1915 ...	...	196	133	96	47	...	26	498
	1916 ...	...	211	137	97	49	...	31	525
	1917 ...	...	219	140	1	50	...	32	442
<i>Awards and Determinations—</i>	(1913 17	...	265	127	73	54	18	21	575
Awards and Determinations in force ...	1914 18	...	242	133	89	55	46	26	609
	1915 20	...	261	137	103	56	57	29	663
	1916 30	...	258	141	120	62	64	31	706
	1917 64	...	251	145	125	71	56	32	744
<i>State Awards and Determinations—</i>	(1913 ...	...	32	8	3	...	...	15	58
	1914 ...	...	17	10	4	...	...	19	50
Applying to Whole State ...	1915 ...	...	26	12	7	...	...	20	65
	1916 ...	...	8	12	8	...	...	21	49
	1917 ...	...	17	16	14	...	...	25	72
	1913 ...	...	58	...	28	53	13	1	163
Applying to Metropolitan area	1914 ...	...	63	...	30	54	25	1	173
	1915 ...	...	75	...	30	54	32	1	192
	1916 ...	...	74	1	33	58	37	2	205
	1917 ...	...	80	1	31	62	30	1	205
	1913 ...	...	49	105	1	...	1	5	161
Applying to Metropolitan and Country areas ...	1914 ...	...	41	109	12	...	5	6	173
	1915 ...	...	38	111	17	...	7	8	181
	1916 ...	...	49	114	20	...	7	8	198
	1917 ...	...	89	118	26	2	5	6	246
	1913 ...	...	126	14	41	1	4	...	186
Applying to Country areas ...	1914 ...	...	121	14	43	1	16	...	195
	1915 ...	...	122	14	49	2	18	...	205
	1916 ...	...	127	14	59	4	20	...	224
	1917 ...	...	65	10	54	7	21	...	157
<i>Commonwealth Awards—</i>	(1913 ...	...	13	17	15	16	9	13	...
	1914 ...	...	16	17	15	15	8	12	...
Awards in force in each State	1915 ...	...	17	19	15	16	10	14	...
	1916 ...	...	25	25	19	22	13	18	...
	1917 ...	...	41	41	30	37	25	34	...
<i>Industrial Agreements—</i>	(1913 228	...	75	...	5	11	82	...	401
	1914 179	...	78	...	10	17	85	...	369
In force ...	1915 361	...	73	...	15	16	83	...	548
	1916 374	...	85	...	49	18	83	...	609
	1917 465	...	82	...	75	18	92	...	732
	1913 ...	...	132	129	68	62	57	61	...
Commonwealth Agreements in force in each State ...	1914 ...	...	96	76	28	34	29	30	...
	1915 ...	...	119	229	29	36	30	33	...
	1916 ...	...	125	236	32	40	37	39	...
	1917 ...	...	137	281	43	50	36	37	...
Number of Persons working under State Awards and Determinations (estimated)	1917 ...	...	260,000	150,000	90,000	25,000	32,000	12,000	569,000

\* The figures for New South Wales are exclusive of Demarcation Boards. † Including one Board subsequently superseded by three boards. ‡ In pursuance of the provisions of the Industrial Arbitration Act of 1916, all Industrial Boards appointed under the Industrial Peace Act of 1913 were dissolved on the 12th January, 1917, with the exception of those which had matters pending or partly heard. At the 31st December, 1917, all of these latter Boards had also been dissolved. The work of the Boards appointed under the Industrial Peace Act is being undertaken by a Court of Arbitration constituted under the new Act.

From the particulars set out in the above table, ready comparison can be made with respect to the progress in each of the States during the years 1913 to 1917, as to the number of Boards operating, and the number of Awards and Determinations, and Industrial Agreements in force at the end of each annual period.

## SECTION XXVIII.

## DEFENCE.

## § 1. Military Defence.

1. **Development of State Military Systems.**—Prior to 1870, the main defence of Australia was entrusted to small garrisons of British troops quartered in the leading cities, whose primary purpose was to serve as a convict guard. From time to time, rumours of wars and of attacks upon Australia deemed imminent as a result of European entanglements, caused the raising of local companies and batteries, which were generally disbanded upon the cessation of hostilities or the quietening of the rumours. The first of such bodies was the "Loyal Association" formed in 1801 as a volunteer corps, on account of the Napoleonic wars, and at the express invitation of the Governor. Half a century later, and at other later dates, fear of Russian aggression drove the colonists to measures of self-defence. Efforts to permanently establish a defence force, however, failed until 1870. In that year, the withdrawal of the last Imperial regiment from Australia, and the sense of insecurity which the Continental wars had engendered, resulted in a definite basis for colonial defence being settled. Small detachments of permanent soldiery were established to act generally as a nucleus about which the citizen soldiery should be shaped, and, generally, to look after the forts and defence works, which were then in course of erection. The system rested upon a volunteer basis, training and service being freely and enthusiastically given by the citizens, the Governments supplying arms and accoutrements and sometimes uniforms. Reward for five years' service frequently took the shape of grants of land. About 1880, Imperial experts advised that the purely volunteer system should be replaced by a "militia" or partially-paid system. The provision of a small annual allowance, generally £10 or £12 per annum for the gunner or private, with a sliding scale for higher ranks, together with arms, accoutrements, ammunition, and all military necessities free, enabled the "militia" system to be introduced about 1883-4. The expenditure was thereby increased, but it was held that the efficiency was greatly enhanced. With reductions in the rates of pay the system remained till the introduction of compulsory military training. The "permanent" forces were from time to time augmented. Cadet corps were also instituted in the larger schools. A detailed historical account of the Australian defence forces prior to federation will be found in the Official Year Book No. 2, pp. 1075-1080.

The strength of the military forces of the several States prior to federation was generally nearly up to establishments. On 31st December, 1900 (the eve of federation), it was:—New South Wales, 9338; Victoria, 6335; Queensland, 4028; South Australia, 2932; Western Australia, 2696; Tasmania, 2024; total for Commonwealth, 27,353. Cadets, reservists, and rifle club members are excluded.

2. **Development of Commonwealth System from 1901 to 1915.**—Under the terms of the Constitution Act 1900, the Commonwealth took over control of defence matters in March, 1901. For four years from that date the land forces were administered by a general officer commanding, under the ministerial headship of the

Minister for Defence. Early in 1905, a Council of Defence (since enlarged) was constituted to deal with questions of policy; also a Military Board, to supervise the administration of the forces. The principal aims in view were:—(i.) continuity of policy and administrative methods; (ii.) effectual parliamentary responsibility; (iii.) continuous inspection by an independent officer, the Inspector-General; (iv.) development of an efficient citizen force; (v.) decentralisation of authority by developing the independence of district commands. The Commonwealth has been divided into six military districts, roughly coterminous with boundaries of the States.

The citizen soldiery, or militia, makes up the main portion of the land forces of the Commonwealth. For administration at central and district headquarters, and for instruction of the citizen forces and assistance in the administration of units, there is an administrative and instructional staff of professional soldiers. Other permanent troops are the regiment of Royal Australian Garrison Artillery, which provides the garrison (with citizen troops as reliefs) for strategic positions and defended ports, and maintains the forts and armament in connection with them; three batteries of Royal Australian Field Artillery; the Royal Australian Engineers; and small detachments of Army Service, Medical, Veterinary and Ordnance Corps. These form a nucleus, each in its own arm, for instruction and administration of the citizen forces. In addition to the active forces, officers who have retired after having passed through a course of training, and members of rifle clubs, who each year fire a prescribed musketry course, are classed as reserves.

The mobile field force, which absorbs the great bulk of the citizen army, consists of two light horse divisions, and six divisions besides two regiments of light horse, two field artillery brigades and two infantry brigades, four companies of engineers, two companies of army service corps and three field ambulances which are not allotted in divisional organisation. The garrison troops find the necessary garrisons for the defended ports. Fuller particulars regarding administration and organisation will be found in Official Year Book No. 6, page 1046.

**3. The Present Military System.**—The defence of Australia at the present time is enacted and prescribed by the Defence Acts 1903-17 of the Federal Parliament. The provisions of the Acts of 1903 and 1904 and the regulations under them contain the main working principles of Australian defence, the necessary expansion being provided for in the amendments of 1909, 1910, 1911, 1912, 1914, 1915 and 1917. The main provisions of the Acts up to 1912 inclusive will be found in Official Year Book No. 6, pp. 1050 *et seq.* The principal provision of the Act of 1909 is the enactment of compulsory military or naval training, with regulations for registration, enrolment, and exemption. Statutes were passed subsequently, extending or modifying the legislative provisions, removing obstacles and difficulties, and, where necessary, providing machinery.

Owing to experience gained during the progress of the present war, many deficiencies and defects were discovered in the Defence Act 1903-15, and in order to adjust these matters, and to embody further provisions necessary in view of the emergencies arising out of a state of war, further legislation was passed in 1917. The principal features of this Amending Act were as follows:—(a) Delegation by Governor-General of power to appoint or promote Officers; (b) Provision for maintenance of additional permanent forces in time of war; (c) Validation of irregular appointments and enlistments; (d) Amendment of definition of "active service"; (e) Application of the Army Act to Australian troops; (f) Powers in relation to Courts Martial and laws applicable thereto; (g) Medals and decorations.

(i.) *Peculiar Position of Australia.* The Acts of 1909 and later years were the direct outcome of the feeling existing in a large majority of the citizens of the community, that Australia was insecure under the voluntary system. Recently, a Minister of State for Defence referred to the fact that if on a map of the world all the countries stained with blood were to be marked, Australia would be the only white spot. It is the national policy to effect a guarantee, by thorough preparation for war, that this exemption shall continue.

(ii.) *Military Population.* In connection with the numbers available, the figures of male population are of interest. The total number at cadet age, i.e., between 12 and 18, at the Census of 1911 (3rd April) was about 260,000; at citizen soldier age, i.e., between 18 and 26, 366,000; these latter, with 330,000 at ages between 26 and 35, give 696,000 as the total males at the best period for military service. In addition, there were about 614,000 between 35 and 60.

(iii.) *Record for Anthropometric Purposes.* In connection with the medical inspection, it has been arranged that the colour and character of hair, and the colour of eyes of those examined, shall be recorded for statistical purposes.

A systematic record of height, weight and chest measurement of each trainee is also made.

It is possible that later the recommendations of the British Anthropometric Committee will be adopted.

The object of the investigation is to study the development of the Australian nation, the necessary statistic for military identification purposes affording a unique opportunity. A possibility exists of co-ordinating anthropometric work in the schools with that done in connection with compulsory military service.

(iv.) *Compulsory Training.* By the Defence Acts of 1903 and 1904 all male inhabitants of Australia between the ages of 18 and 60 years were made liable to serve in the defence forces *in time of war*. The more recent Acts make training and service compulsory *in time of peace*. By the Act of 1909 the principle of universal liability to be trained was made law for the first time in any English-speaking community. It prescribed Junior Cadet training for lads 12 and 13 years of age, followed by Senior Cadet training for lads from 14 to 18 years of age; and thereafter adult training for two years in the citizen forces, to equal 16 days annually, followed by registration (or a muster parade) each year for 6 years. Arrangements for registration, enrolment, inspection, and medical examination of persons liable to be trained were made. The latter Acts introduced necessary modifications, the principal being the extension of adult service to eight years. On 1st January, 1911, by proclamation, compulsory training was established. The already existing militia (voluntarily enlisted) were free to complete the three years for which they had engaged to serve, but conformity to the new system was essential. Officers and non-commissioned officers might re-engage. All male inhabitants of Australia, who are British subjects, and have resided in the Commonwealth for six months, are liable to serve. Exemptions (see *infra*, p. 1014) exist for certain individuals and classes of people, and may be granted in the case of unpopulated and sparsely populated areas. The training is as follows:—

- (a) From 12 to 14 years of age, in the junior cadets.
- (b) From 14 to 18 years of age, in the senior cadets.
- (c) From 18 to 26 years of age, in the citizen forces.

(v.) *Visit and Report of Viscount Kitchener.* At the end of 1909 and before the Act of that year came into operation, the late Field-Marshal Lord Kitchener visited Australia at the invitation of the Government, and after inspection of the military forces and the forts and defence works erected or in course of erection, reported upon the whole scheme of land defence. His scheme was based on the provisions of the Defence Acts 1903-9. The trend and purport of the published report are given in the Official Year Book No. 4, pp. 1085-1088. The adoption of some of Lord Kitchener's recommendations necessitated further amending Acts. The proposed organisation is based upon necessary considerations of (a) the numbers available; (b) the length of service demanded; (c) the proportion of the various arms required. It differs in some of its details from the scheme propounded by Lord Kitchener and includes—

- 28 regiments of light horse;
- 56 batteries of field artillery;
- 92 battalions of infantry;

and a due proportion of engineers, army service, and army medical corps, troops for forts, and other services.

(vi.) *Junior Cadets.* Junior cadet training, lasting for two years, consists of 90 hours each year, and begins on the 1st July in the year in which the trainee reaches the age of 12 years. No registration is made, but when the cadet presents himself for registration in the senior cadets in the year in which he attains the age of 14 years, he is required to shew that he has completed the necessary training in his 13th and 14th years. This training is aimed at developing the cadet's physique. It consists principally of physical training for at least 15 minutes on each schoolday, and elementary marching drill. The following subjects are also taught, viz. :—Miniature rifle shooting; swimming; running exercises in organised games; first aid; and (in schools in naval training areas) mariners' compass and elementary signalling. The junior cadets are not organised as military bodies, and do not wear uniform. The Commonwealth Government maintains a staff of special instructors of physical training, by whom classes are held for school teachers in all districts throughout the Commonwealth. The school teachers, in turn, impart the lessons to the boys. The Inspectors of Schools supervise the training and inspect the cadets of State Schools on behalf of the Defence Department. The instructors of physical training perform these duties for the non-State Schools and are also employed in the training of women teachers; but the instruction of girl scholars rests wholly with the States' Education Departments.

(vii.) *Senior Cadets.* Senior cadet training, lasting for four years, begins on the 1st July of the year in which the trainee reaches the age of 14 years. It consists of 40 drills each year, of which four are classed as whole days of not less than four hours, 12 as half-days of not less than two hours, the remainder being either night drills or quarter-day drills of not less than one hour. To meet special cases (including extremity of weather) modifications and substitutions are permitted, but the minimum efficient service required of senior cadets is invariably 64 hours per annum, a minimum of 36 hours of which is to be done in the employer's time, the remainder in the cadet's leisure time. Registration of every male born in 1894 or subsequently, and who has resided for six months in the Commonwealth, must, if his *bonâ fide* place of residence is within five miles of the nearest place appointed for training, be effected in the first two months of the calendar year in which he completes his 14th year. The four years' training covers the foundation work necessary for service in any arm. It comprises marching, handling of arms, musketry, physical training, guards and sentries, tactical training as a company in elementary field work, and elementary battalion drill. Discipline is strongly inculcated. Senior cadets are not required to attend camp.

Schools containing at least 60 senior cadets may form separate units, and may arrange their parades to suit school time tables, but battalion parades must be attended.

(viii.) *Adult Forces.* Training in the citizen forces, lasting for eight years, begins on 1st July of the year in which the soldier reaches the age of 18 years. Except in the last year of this service (when only one registration muster parade is necessary in normal peace time) the work consists of continuous training in camp for 17 days in the case of the naval forces, artillery, and engineer arms, and eight days for other arms, and eight days (or equivalent) home training for all arms. The total service is thus 25 days per annum for the specialist and technical corps, and 16 days per annum for other corps, the main body of whom are light horse and infantry (see table on p. 1016 *infra*). The home training (total eight days) is divided into whole days, half-days, and nights, the respective minimum duration of these being six, three, and one and a-half hours; two half-days or four nights counting as one whole day.

(ix.) *Allotment to Arms.* Trainees to the number required are first allotted to the naval forces. There is no allotment during senior cadet training to particular branches of the military service. Upon transfer to the citizen soldiery, cadets with special educational or technical qualifications are drafted as recruits to one or other of the specialist

or departmental corps to the required number; the bulk go to infantry. All other arms, except light horse, are maintained by annual quotas transferred from the senior cadets, as laid down in annual establishments. In the light horse, enrolment is not compulsory, since each recruit is required to provide his own horse; and, while every encouragement is given to eligible trainees to enrol, voluntary enlistment by those not liable for compulsory service is continued for the present.

Persons who are forbidden by the doctrines of their religion to bear arms are, as far as possible, allotted to non-combatant duties, as stretcher-bearers in infantry companies, or as members of the Army Medical Corps.

(x.) *Exemptions.* Status, condition, employment, or place of abode, may exempt from service. In time of war the exemptions are as follows:—Aliens and non-Europeans; persons certified as medically unfit; members and officers of Commonwealth and State parliaments; judges and magistrates; clergymen and theological students; police and prison officials; lighthouse-keepers; medical practitioners and nurses in public hospitals; and persons having conscientious objections to bear arms. Medical practitioners, non-Europeans, and conscientious objectors are not exempt from non-combatant duties.

In time of peace the exemptions are:—Persons whose *bona-fide* place of residence is more than five miles from the nearest place appointed for training; those certified as medically unfit; aliens; non-Europeans (exempt from combatant duties only); school teachers qualified as instructors of drill; members of the permanent naval or military forces. Theological students may be exempted from training. Prior to the passing of the Defence Act 1915, all male inhabitants of Australia who had resided therein for six months were required to register for military or naval training in the year in which they became 14 years of age, but the 1915 Act requires only those to register who reside within five miles of a place of training.

Burden of proving exemption rests upon the person claiming it, a final appeal lying to the civil courts. Any person convicted by a court of a disgraceful or infamous crime, or who is a notoriously bad character, is permanently disqualified.

(xi.) *Penalties for Prevention or Evasion.* Employers, parents, and guardians may not, under a heavy penalty, prevent or attempt to prevent any employee, son or ward, who is a trainee, from rendering service; nor may any employer penalise or prejudice any employee in his employment, or attempt to do so, because of the latter's service or liability for service; and the employer is compelled to pay the senior cadet's wages for the time he is away from work for the purpose of training (see Section 134 (1A) of Defence Act 1903-17).

A heavy penalty is enacted for evasion of service as required under the Act by those liable to serve. Penalties take the form of money fine, or detention in military custody under enforced training and discipline. Non-efficient must attend additional training for each year they are non-efficient. Evasion renders the person evading or failing to serve ineligible for employment of any kind in the Commonwealth Public Service.

Children's courts are used where possible for the prosecution of cadets under the age of 16 years.

(xii.) *Efficiency.* Each trainee must be efficient in each year. Parades, as ordered, must be attended, and a standard of efficiency, based on the number of years' training and the work performed, must be attained.

Parades are classed as compulsory, alternative, and voluntary. The former make up the exact amount of training required (25 days per annum for technical arms, 16 days for others), and may not be missed without leave formally given. Alternative drills are

appointed for those absent with leave from compulsory parades, and are allowed to count for pay and efficiency. Voluntary parades are held for those desiring further proficiency, and for candidates for promotion. Any trainee failing to qualify as efficient in any year must do an extra year's training for each failure. Thus, there must be 12 annual entries of efficiency or exemption in each soldier's record before he receives his discharge, four as a senior cadet, and eight as a citizen soldier.

(xiii.) *Pay.* In addition to the remuneration of professional soldiers, pay is provided for all members of the militia. Citizen soldiers who voluntarily enlisted under the old system receive the same rates of pay as formerly, the basis being 8s. per day for gunner, sapper, or private. Trainees under the compulsory system receive 3s. per day during the first year, and 4s. per day during the subsequent years of their training. Higher ranks are paid higher rates. For corporals the daily pay is 9s., for sergeants, 10s., for sergeants-major 10s. 6d. and 11s. Light horse trainees receive in addition £4 per annum for keep of horse. In the commissioned ranks the daily rates of pay are 15s. for lieutenants, 22s. 6d. for captains, 30s. for majors, 37s. 6d. for lieutenant-colonels, and 45s. for colonels. Mounted officers also receive horse allowance.

(xiv.) *Uniform and Equipment.* The uniform is simple and inexpensive, but suitable. It is free, and the principal articles are issuable every second year. The clothing is of universal pattern, and, beyond distinguishing corps' badges and a coloured hat-band, there is no distinction (except rank marks). Uniform is worn on all parades and drills, but its wearing is forbidden when not on military duty. Rifles and free ammunition are provided. Citizen soldiers have their rifles on issue, but arms for senior cadets are stored in local depôts, and are issued as required for drill and musketry. An allowance of free ammunition is made to commanders of units to encourage rifle shooting. The uniform issued to each citizen soldier is such as to enable him to parade (upon notice) with two woollen shirts, two pair breeches, hat, sleeping cap, puttees or leggings, military boots, and kit bag.

The task of fully equipping the rapidly expanding Australian Army has been undertaken. Some of the required technical stores have been indented; but the Commonwealth itself has established factories for the supply of cloth and clothing, small arms, cordite, harness and saddlery.

(xv.) *Reserves.* The reserves consist of (a) certain officers transferred from the active list to the reserve of officers; (b) members of the Australian Army reserve; (c) members of rifle clubs. The reserve of officers includes (i.) officers who have been fully trained and are still capable of serving, but who, being unable to continue on the active list through pressure of business engagements, removal to rural districts or such like causes, have joined the reserve; (ii.) officers of the Australian Army Medical Corps for whom no vacancies exist in the active list, but who are required for medical duties with units and in areas. The Australian Army reserve was formed in November, 1916, with the object of (i.) utilising the experience gained by members of the Expeditionary Forces as a national insurance for the future peace of Australia; (ii.) affording those who have served in any of the Empire's wars prior to the present one an opportunity to give the benefit of their war-won experience should the necessity arise; (iii.) giving the units of citizen forces numbers to preserve the traditions won in Gallipoli and Egypt, and on the Western and other fronts; (iv.) linking up to each of the re-numbered units of the citizen forces a reserve of men to set up before the trainees a standard of self-sacrifice and soldierly conduct. The Australian Army reserve consists of officers, non-commissioned officers and men who have seen active service, not only in the present war, but in all wars in which the Empire has been engaged. Ex-members of the permanent military forces are also eligible for membership. Enlistment is voluntary. Rifle clubs are established in a large number of localities throughout the Commonwealth. On the 31st December, 1917, there were 1512 clubs with a membership of 100,389, and in addition 152 miniature rifle clubs having a membership of 8676. Applications to form rifle clubs are made

to the commandant of a district, and must be signed by not less than thirty male persons between the ages of sixteen and sixty, who are required to be natural-born or naturalised British subjects, and are not undergoing training under the universal clauses of the Defence Act. Persons, however, who are temporarily exempted from universal training may be permitted to join rifle clubs during the period of their temporary exemption. Members of rifle clubs must fire an annual course of musketry, but do not undergo any systematic drill. From the outbreak of the present war until the 31st March, 1917, 24,735 members of rifle clubs enlisted for service abroad with the Expeditionary Forces. Commissions as lieutenants and appointments as non-commissioned officers in the reserve forces may be granted to members of rifle clubs who pass the prescribed examinations and fulfil other conditions in regard to efficiency, etc.

(xvi.) *Allotment of Units to Divisional Brigade, Battalion, and Training Areas.* The organisation is territorial, and the divisions based upon infantry units. There are 92 battalion areas, forming 23 brigades. The areas have approximately equal numbers of males of citizen soldier age (about 1300), and each furnishes a battalion of infantry, and a proportion of other troops. For administrative purposes, areas are subdivided into two or three training districts. Three brigades will form a division. Two brigade areas will each provide four battalions of infantry, one field artillery brigade (with proportion of divisional ammunition column), one field company of engineers, one company army service corps, and one field ambulance. The other brigade area of the division provides four battalions of infantry, two squadrons of divisional light horse, one howitzer brigade, one divisional signal company of engineers, one company army service corps, and one field ambulance. Light horse and field artillery units for light horse brigades will also be furnished by some of the areas. *Personnel* for garrison artillery and submarine and electric engineers for garrison forces will eventually be supplied in the areas nearest to such localities. The average annual contingent of recruits will be about 155 for each battalion area, plus such additions as are required for light horse and field artillery units raised therein. The figures shewn in the following tables are approximate, and include the recruits (18-19 year), but not the 25-26 year men.

#### ULTIMATE ALLOTMENT OF UNITS TO BRIGADE, BATTALION, AND TRAINING AREAS.

State.	Brigade Areas.	Battalion Areas.						Training Areas.	
	No.	No. of Battalions.	Providing the undermentioned units.				Total Nos. in Training Areas.	No.	
			Infantry and Proportion of Engineers, A.S.C. and A.M.C.	Light Horse.		Field Artillery.			
				Squadrons.	Nos.	Batteries.			Nos.
N. S. Wales ...	8	33	32,901	40	4,490	20	3,220	40,611*	75
Victoria ...	7	29	28,913	36	4,041	19	3,059	36,013†	65
Queensland ...	3	11	10,967	16	1,796	7	1,127	13,890‡	28
S. Australia ...	2	9	8,973	12	1,347	5	805	11,125§	22
W. Australia ...	2	6	6,979	4	449	3	483	7,911	20
Tasmania ...	1	4	3,988	4	449	2	322	4,759¶	12
Totals ...	23	92	92,721	112 28 Rgts	12,572	56	9,016	114,309**	224

\* Also 766 for forts. † Also 327 artillery and 227 engineers at Geelong and Queenscliff for forts. ‡ Also 79 garrison artillery and 13 engineers for Lytton. § Also 86 artillery for forts. || Also 156 artillery and 32 engineers for forts. ¶ Also 86 artillery and 32 engineers for forts. \*\* Also 1804 for forts.

(xvii.) *Instructional Staff.* The instructors provided for training consist of 210 officers and 779 warrant and non-commissioned officers of the instructional staff (permanent), and 214 area officers (temporary). They supervise the training of light horse, infantry,



and senior cadet units, and instruct in the non-technical duties of specialist corps. Additional officers and non-commissioned officers in the permanent troops instruct in technical work.

The officers of the instructional staff act as Brigade-Majors, and as such, represent the Commandant in the brigade area. They are responsible for the instruction of officers of the existing citizen forces, conduct local schools of instruction, supervise and instruct the area officers, and allot the non-commissioned officers of their detail to various duties. Assistant Brigade-Majors are also furnished from the instructional staff. The duties of area officers vary both in nature and extent, and comprise registration and organisation of those to be compulsorily trained, and clothing, arming, equipping, and training the senior cadets. They also perform the duties of Adjutant to senior cadet battalions.

The staff instructors (warrant and non-commissioned officers) assist in carrying out the administrative work of their areas or units, and instruct cadets and recruits in light horse and infantry drill.

(xviii.) *Higher Training.* At present there is no institution in Australia corresponding to the staff colleges at Camberley, England, or Quetta, India, for the higher training of officers.

Officers of the permanent forces who pass the required examinations are sent to these institutions from time to time, and on return to Australia are appointed to positions on the General Staff, etc.

The higher training of officers of the citizen forces is, as far as possible, carried out in special schools of instruction, and staff tours held in the various military districts.

Government aid is also furnished to United Service Institutions, which have been established in the larger centres. Lectures of great value are delivered by specialists, and war games, manoeuvres, etc., carried out. Some of the institutions have large and well-selected libraries.

Schools of instruction are also conducted for junior officers.

(xix.) *The Royal Military College, Duntroon, Federal Territory*, is established for the purpose of providing trained officers for the permanent forces. Admission is by open competitive examination, a definite number of vacancies being allotted to each State of the Commonwealth on a population basis. About 30 staff-cadets are thus admitted annually, and, in addition to these, ten staff-cadets from New Zealand are nominated yearly by the Dominion Government, which pays £200 per annum for each. The age for admission is between 16 and 19 years, though there is a provision in the regulations by which members of the citizen forces over 19 years of age who pass the prescribed examination, and are approved by the Governor-General-in-Council, may be admitted. The college was opened in June, 1911.

The normal college course lasts for four years, and is followed by a tour of duty in England or India, after which graduates will be appointed to staffs or permanent troops in Australia and New Zealand.

During the war the course has been temporarily modified. Over 113 staff-cadets have already (June, 1916) been specially graduated, and appointed to units serving at the front with the Australian and New Zealand forces. Schools for the training of junior citizen officers for service with the Australian Imperial Force are also being held at the college as a special measure.

No fees are charged for maintenance and instruction, each staff-cadet being credited with an allowance of 5s. 6d. per diem to meet expenses of necessary uniform, books, instruments, etc.

The full establishment of cadets is 150, but owing to special graduations for active service the strength (31st December, 1917) is at present 127.

The course of instruction comprises both educational and military work, the former being mainly completed in the first two years. Cadets are prepared for light horse, artillery, engineer, and infantry duties.

In December, 1917, the staff numbered—military, 34; civil, 15.

(xx.) *Railways and Defence.* A War Railway Council, consisting of military and railway officers, was instituted in 1911. Its chief duties are to furnish advice and information regarding railway transport for military purposes, and to secure co-operation between the Commonwealth Defence Department and the States' Railway Departments in regards to concentration and mobilisation of troops. To prevent delay in the transport of troops, particularly that caused by the transshipment of baggage and implements of war, the Council has recommended the adoption of a uniform railway gauge on lines linking up the States' capitals. An Engineer and Railway Staff Corps have been instituted, and numbered 55 officers on 1st April, 1917. Fuller details will be found in Official Year Book No. 6, pp. 1070-1.

(xxi.) *The Universal Training System in Operation.*—(a) *Special Instructional Staff.* The first work in the active carrying out of the scheme commenced with the training of 200 non-commissioned officers for the instruction of the projected army in a six months' camp. Area officers were chosen from the citizen forces, and underwent a six weeks' course of instruction. With the year 1911 came the active enrolment of the new cadets, who commenced training on the 1st July following. These comprised all males in training areas who were born in 1894, 1895, 1896, and 1897.

(b) *Stages.* The stages are as follows :—

First stage, January to June, 1911.—Existing junior and senior cadets continued to 30th June, 1911, but all equipment returned by that date; registration, inspection, and medical examination of lads whose 14th, 15th, 16th, and 17th birthdays occurred in 1911; preparations made to clothe and equip the new senior cadets.

Second stage, July, 1911, to June, 1912.—Registration, etc., in January and February, of lads whose 14th birthday occurred in 1912; new junior and senior cadet training from 1st July, 1911. About 17,000 of the latter passed as recruits upon completion of this period, inaugurating the new citizen forces in the third stage (1st July, 1912).

Third stage, July, 1912, to June, 1913.—Registration, etc., in January and February, of lads whose 14th birthday occurred in 1913; new citizen forces :—training began with about 17,000 recruits (18 year-old persons allotted from the new senior cadets). During the third, fourth, and subsequent stages the new senior cadet force, numbering about 90,000, continues. Upon expiry of this period, the second quota of senior cadets (1895 lads) to the number of 17,000 passed as recruits to the citizen forces (1st July, 1913).

Fourth and subsequent stages, after July, 1913 (and each year to 1919).—Registration, etc., of lads whose 14th birthday occurred in 1914, and so on. In the fourth and subsequent stages to the tenth, the new citizen forces will also be increased by eighteen-year-old recruits from senior cadets, numbering about 17,000 each year. In 1909, the 1894 quota, being in their 25th year, will be liable for one registration or muster parade, and will in the following year be free of compulsory service.

(c) *Summary of Working of the System in 1911-12 (Second Stage).* On 31st December, 1911 (six months after commencement of the new senior cadet training), the total registrations in training areas numbered 155,132. Of these, 105,133 had been medically examined, and 93.2 per cent. passed as fit. Exemptions in training areas (generally cases so far from places of training that attendance would involve great hardship) numbered 57,949. Of the total number liable for service 89,138 were actually in training.

The junior cadets do not register, but are medically examined. On 31st December, 1911, 33,767 had been examined, and 97.8 per cent. certified as fit.

(d) *Summary of the Working of the System, 1913 to 1917 (Third, Fourth, and Subsequent Stages).* The numbers up to 31st December, 1917, include the 1894 to 1899 annual quotas, who on 1st July, 1912, and each 1st July thereafter to 1917, passed to the citizen forces. They are shewn hereinafter.

(xxii.) *Success of the System.* A slight amount of opposition has been manifested to the system. Though principally from shirkers, there are also a small number of persons who oppose military service on religious grounds. As already stated, however, conscientious objectors are allotted duties of a non-combatant nature. The prosecutions and penalties for evasion, etc., though not wholly, are mainly operative against shirkers. It is claimed that the scheme, both before its inception and since its successful inauguration, has had the support of leading statesmen of all political views, as well as the vast majority of the citizens of the Commonwealth. In general, the trainees are alert and well disciplined while on parade; and the interest and the enthusiasm of the lads is shewn by the large number of candidates seeking promotion at competitive examinations (practical and oral), after courses of lectures, demonstrations and special parades. Another evidence of enthusiasm is the fact that the applicants for enrolment in the technical arms, where the total service is considerably greater than the absolute minimum of 16 days annually required from infantry and light horse, is always greatly in excess of the requirements of those arms. Further, a great deal of voluntary service is rendered in all branches of the service, and the rifle clubs of the citizen units are well patronised. Many of the regiments have athletic, gymnastic, and swimming clubs, and sports meetings are frequently held. Patriotic citizens in local centres have contributed generously to funds for establishing bands, regimental clubs, annual sports gatherings, etc. Moreover, a marked improvement has quite lately become apparent in the general conduct and bearing of the youths of Australia, and it is claimed that this is the effect of the system of universal training. As a result of inquiries made in 1914, the police authorities in all the States concurred in the opinion that the behaviour of the youths who are subject to the training is vastly improved. It is stated that both mentally and morally, as well as physically, the benefits are very definite, and that "the principal effects of a beneficial nature are increased self-respect, diminution of juvenile cigarette smoking and 'larrikinism,' and generally a tendency towards a sense of responsibility and a desire to become good citizens." In regard to opposition to the system, the figures for prosecutions are interesting:—Percentage of prosecutions to number liable for training was 5.38 in 1914; the average percentage for previous years was 6.90. Thus a marked improvement is shewn. It must be remembered that the figures include persons prosecuted more than once, and that all prosecutions are not against those actually liable for service, but include cases against employers (for penalising in employment, contrary to section 134 of the Act) and parents and guardians (failing to register sons, etc.). The percentages would be substantially reduced if only those liable for training were shewn (parents, employers, and those prosecuted more than once being deducted). Further, a prosecution follows shortage of drills, which, in many cases, is not the result of active opposition.

4. *Strength of Military Forces.*—(i.) *Strength in each District, 1901 to 1917.* There was little alteration in the numbers serving in the Australian military forces from the institution of the Commonwealth to the year of the introduction of the compulsory training system. From 1913, however, the annual increase has been considerable. The following table shews the development:—

## STRENGTH OF MILITARY FORCES, 1901 and 1911 to 1917.

*District.	1901. †1/3/01.	1911. 30/6/11.	1912. 30/6/12.	1913. 30/6/13.	1914. 30/6/14.	1915. 30/6/15.	1916. 30/6/16.	1917. 30/6/17.
Headquarters ...	...	†141	†140	†277	†330	†416	†360	†377
1st Queensland ...	4,310	3,371	3,357	4,625	5,844	7,734	9,379	11,415
2nd New South Wales ...	9,772	8,206	8,163	12,105	16,365	21,661	24,761	28,783
3rd Victoria ...	7,011	6,905	6,896	10,840	14,326	18,823	23,830	29,131
4th South Australia ...	2,956	1,990	1,869	3,228	4,708	6,527	8,154	9,767
5th Western Australia ...	2,283	1,600	1,451	1,685	2,046	3,004	4,197	4,882
6th Tasmania ...	2,554	1,986	1,820	1,777	2,026	2,807	3,446	4,007
Total ...	28,886	24,199	23,696	34,537	45,645	60,972	74,127	88,362

\* Approximately coterminous with boundaries of States. † Date of Commonwealth taking over the military forces from States. ‡ Including cadets at Royal Military College of Australia, Duntroon.

(ii.) *Strength of the Various Arms.* The numbers of the different arms of the service on the 30th June, 1917, were as follows:—

## ARMS OF THE COMMONWEALTH DEFENCE, 1917.

Light Horse ...	10,619	Aust. Flying Corps	1	Administrative and	
Field Artillery ...	4,515	Army Nurs'g Service	366	Instructional Staff	1,125
Garrison Artillery ...	1,627	Army Pay Corps ...	255	Pay Department,	
Engineers ...	4,724	Army Vet'ary Corps	25	Rifle Ranges, Rifle	
Infantry ...	57,048	Ordnance Departm't		Clubs, Officers, etc.	519*
Intelligence Corps	9	(including Arma-	538	Royal Military C'lege	148*
Army Service Corps	2,101	ment Artificers) ...			
Army Medical Corps	3,009	Area Officers ...	235	Grand Total ...	86,456†

\* Includes civilians. † Excluding Engineer and Railway Staff Corps, etc.

(iii.) *Classification of Land Forces.* The following table shews the strength of the land forces in each State, classified according to nature of service, on the 30th June, 1917:—

## CLASSIFICATION OF LAND FORCES, 1917.

Branch of Service.	Head- quarters	1st Military District.	2nd Military District.	3rd Military District.	4th Military District.	5th Military District.	6th Military District.	Total.
Permanently employed ...	377*	444	1,478	915	232	314	163	3,923
Citizen Soldiers ...	...	10,900	27,204	28,124	9,479	4,365	3,721	83,793
Engineers and Railway Staff	6	10	9	8	5	8	5	51
Corps ...	...	32	26	8	16	180	104	366
Army Nursing Service	...	29	66	76	35	15	14	235
Area Officers ...	...	13,182	32,258	24,350	10,458	10,691	5,795	101,734
Rifle Clubs ...	...	11,495	33,009	27,560	8,942	5,535	3,201	89,742
Senior Cadets ...	...	44	69	55	22	17	21	228
Unattached List of Officers	...	272	280	511	216	187	88	1,554
Reserve of Officers ...	...	52	79	74	43	37	31	316
Chaplains ...	...	...	...	...	...	...	...	...
Grand Total ...	383	41,460	94,478	81,681	29,448	21,349	13,143	281,942

\* Including cadets at Royal Military College of Australia, Duntroon.

(iv.) *Numbers Serving under Compulsory Provisions.* The next table shews those registered and training under the compulsory system, distinguishing citizen forces, senior cadets, and junior cadets.

**UNIVERSAL TRAINING.—REGISTRATIONS, MEDICAL EXAMINATIONS, EXEMPTIONS,  
AND NUMBERS SERVING, CITIZEN FORCES, 31st DECEMBER, 1917 (1894,  
1895, 1896, 1897, 1898, and 1899 QUOTAS).**

Military District.	Total Registrations.	Total Medically Exam'd.	Number Medically Fit.	P'centage Medically Exam'd who are Fit.	Number Unfit and Temporarily Unfit	P'centage Medically Exam'd who are Unfit and Temporarily Unfit	Total Exemptions Granted in Training Areas.	Total No. Liable for Training
1899 QUOTA.								
1st ...	3,167	3,103	2,305	74.28	798	12.85	809	2,358
2nd ...	8,824	7,194	5,650	78.45	1,544	10.72	2,353	5,650
3rd ...	6,720	6,383	5,150	80.68	1,233	9.65	1,274	4,746
4th ...	2,262	2,215	1,809	81.6	406	9.13	426	1,836
5th ...	1,203	1,171	974	83.2	197	8.35	197	974
6th ...	892	766	639	83.42	127	8.28	192	639
<b>Total</b> ...	<b>23,068</b>	<b>20,832</b>	<b>16,527</b>	<b>79.32</b>	<b>4,305</b>	<b>20.65</b>	<b>5,251</b>	<b>16,203</b>

**1894, 1895, 1896, 1897, AND 1898 QUOTAS.**

Military Dist.	Total Registrations in Training Areas.						Exemptions Granted.						Number Liable for Training.
	Quota 1894.	Quota 1895.	Quota 1896.	Quota 1897.	Quota 1898.	Total.	Quota 1894.	Quota 1895.	Quota 1896.	Quota 1897.	Quota 1898.	Total.	
1st ...	3,127	3,483	3,488	3,392	3,072	16,562	779	828	828	759	710	3,904	12,658
2nd ...	8,116	8,519	8,851	8,709	7,759	41,954	1,711	1,972	2,251	2,129	1,813	9,876	32,078
3rd ...	7,065	7,441	7,516	7,071	6,324	35,417	1,871	2,051	2,127	1,972	1,463	9,504	25,913
4th ...	2,631	2,976	2,928	2,611	2,088	13,234	758	793	811	863	399	3,624	9,610
5th ...	1,375	1,443	1,346	1,408	1,297	6,869	291	368	322	345	161	1,487	5,382
6th ...	869	952	1,054	908	818	4,601	189	165	213	226	252	1,045	3,556
<b>Total</b>	<b>23,183</b>	<b>24,814</b>	<b>25,183</b>	<b>24,099</b>	<b>21,358</b>	<b>118,637</b>	<b>5,599</b>	<b>6,177</b>	<b>6,552</b>	<b>6,294</b>	<b>4,818</b>	<b>29,440</b>	<b>89,197</b>

**UNIVERSAL TRAINING.—REGISTRATIONS, MEDICAL EXAMINATIONS, AND  
EXEMPTIONS TO THE 31st DECEMBER, 1917 (1900 to 1903 QUOTAS).**

**SENIOR CADETS.**

Military District.	Total Registrations in Training Areas.	Total Medically Examined.	No. Medically Fit.	P'centage Medically Exam'd who are Fit.	Number Unfit and Temporarily Unfit	P'centage Medically Exam'd who are Unfit and Temporarily Unfit	Total Exemptions Granted in Training Areas.	Total No. Liable for Training.	Total No. Actually in Training.
1st ...	14,110	14,029	12,158	86.66	1,871	13.33	1,900	12,210	11,872
2nd ...	37,720	36,965	33,370	90.27	3,595	9.72	4,172	33,370	32,384
3rd ...	31,266	31,156	28,020	89.93	3,136	10.06	3,204	28,062	27,458
4th ...	10,108	10,085	9,175	90.97	910	8.9	933	9,182	9,132
5th ...	6,344	6,342	5,885	92.7	457	7.1	457	5,885	5,771
6th ...	4,188	3,958	3,471	87.69	487	12.30	695	3,471	3,440
<b>Total</b> ...	<b>103,731</b>	<b>102,535</b>	<b>92,079</b>	<b>89.8</b>	<b>10,456</b>	<b>10.18</b>	<b>11,361</b>	<b>92,180</b>	<b>90,057</b>

## UNIVERSAL TRAINING.—MEDICAL EXAMINATIONS TO THE 31st DECEMBER, 1917.

## JUNIOR CADETS.

Military District.				Total No. Medically Examined.	Number Medically Fit.	Percentage Medically Examined who are Fit.	Number Unfit and Tempor- arily Unfit.	Percentage Medically Examined who are Un- fit & Tem- porarily Unfit.
1st	...	...	...	6,870	6,658	96.9	212	3.1
2nd	...	...	...	21,106	20,691	98.03	415	1.96
3rd	...	...	...	15,574	15,318	98.3	256	1.5
4th	...	...	...	5,250	5,135	97.7	115	2.1
5th	...	...	...	4,397	4,322	98.3	75	1.7
6th	...	...	...	1,764	1,693	95.97	71	4.02
Total				54,961	53,817	97.91	1,144	2.08

## § 2. Naval Defence.

1. *Naval Defence under the States.*—(i.) *Independent State Systems.* Prior to 1890, when arrangements were made with the British Government for the maintenance of an Australian squadron, provision for naval defence had been instituted in New South Wales, Victoria, Queensland, and South Australia, where gunboats, torpedo boats, or small cruisers were commissioned and naval volunteers raised. A fuller historical account of the Australian naval forces under the States is given in the Official Year Book No. 2, pp. 1084-1085.

(ii.) *The Naval Agreement with the British Government.*—(a) *The Original Compact.* The naval defence of Australasia and its trade was entrusted primarily to ships of the Imperial Navy, maintained under an agreement entered into between the British Government and the Governments of the Commonwealth and New Zealand, and at their joint charge. This agreement was embodied in Acts passed by the several Legislatures some ten years prior to Australian federation. According to its terms, a naval force, additional to the vessels of the Australian Naval Station, which were to be maintained at their normal strength, was to act as an auxiliary squadron. It consisted of five fast third-class cruisers and two torpedo gunboats, and its special function was the protection of the floating trade in Australasian waters. The agreement was made for ten years, and was then, or at the end of any subsequent year, to be terminable only upon two years' notice being given. On its termination, the vessels were to remain the property of the Imperial Government. Three cruisers and one gunboat were to be kept continuously in commission, and the remainder in reserve in Australasian ports, but ready for commission whenever occasion might arise. The vessels were to remain within the limits of the Australasian station, and were to be employed, in times of peace or war, within such limits, in the same way as the Sovereign's ships of war, or employed beyond those limits only with the consent of the Colonial Governments. The first cost of the vessels was paid out of Imperial funds, but the Colonial Governments paid interest on the prime cost at 5 per cent. (up to a maximum of £35,000 per annum), and a sum not exceeding £91,000 for annual maintenance of the vessels, or a total annual contribution

of £126,000. In times of emergency or actual war, the cost of commissioning and maintaining the three vessels kept in reserve during peace was to be borne by the Imperial Government, and, in every respect, the vessels were on the same status as the ships of war of the Sovereign, whether in commission or not. The officers and men of those in commission were subject to a triennial change. The tenth annual contribution, which was payable in advance on 1st March, 1900, apportioned on a population basis, was as follows:—New South Wales, £37,973; Victoria, £32,749; New Zealand, £21,304; Queensland, £13,585; South Australia, £10,439; Western Australia, £4816; Tasmania, £4776.

(b) *The Agreement of 1903.* The agreement was not dissolved by the union of six of the contracting colonies; but during the negotiations for its renewal, conducted in England between Sir E. Barton (then Prime Minister) and the Admiralty, it was completely reshaped. The auxiliary squadron for local defence, paid for by Australia and New Zealand, altogether disappeared. The Admiralty guaranteed to maintain on the Australian station during peace time a squadron of a certain strength, and to train in one or two of its vessels a certain number of Australian seamen. The colonial contribution, considerably increased, became a direct subsidy to Imperial defence. The total payment into Imperial funds was now to be £240,000, of which New Zealand was responsible for £40,000, and the Commonwealth for the balance. The agreement, like the earlier one, was for ten years.\* By a subsequent arrangement the strength of the squadron was established at one first-class armoured cruiser, three second-class cruisers, and five third-class cruisers.

2. *Development of Commonwealth System from 1901 to 1914.*—The floating trade of the Commonwealth exceeds £200,000,000 per annum, and (quite apart from any Imperial service) its adequate protection involves corresponding naval provision, with such naval war material as will permit the principal lines of sea communication being kept open, and ensure that Australian ports are fully defended. Australian defence, in both its branches (military and naval), passed to the Commonwealth in 1901. Prior to 1905 a naval officer commanding administered the naval forces under the Minister. When the Council of Defence was established in that year, the Naval Board was constituted and took over the administration of the Commonwealth naval forces, thereby ensuring continuity of policy and administration; whilst efficiency and uniformity were provided for in the scheme of inspection and report by an officer who, as Director of Naval Forces, was appointed to deal with the training of the *personnel*, and the condition of the *matériel*, of naval forces and works.

3. *The Present System.*—(i.) *Australian Naval Policy.* An outline of the development of Australian naval policy will be found in Official Year Book, No. 3, pp. 1060-1061. For the more effective coastal defence of the Commonwealth it was decided in 1909 to create an Australian naval force, to replace the squadron previously maintained under the naval agreement with the British Government. It was agreed at the Imperial Defence Conference in 1909 that Australia should provide a fleet unit, consisting of an armoured cruiser† of the *Indomitable* class, three unarmoured cruisers of the *Bristol* class, six destroyers of the improved "River" class, and three submarines of "C" class‡; also the necessary auxiliaries, such as docks and depot ships. The cost of construction at English prices would be about £3,700,000, and the estimated annual cost about £750,000. Of this sum the Imperial Government offered to contribute £250,000, but the Commonwealth Government decided to bear the whole cost.

(ii.) *The Building of the Australian Fleet.* The building of the fleet and the training of the crews were immediately begun. Skilled artisans were despatched from Australia to gain practical experience in navalshipbuilding, construction proceeding both in Britain and Australia. Sailors of all ratings were also trained for the Commonwealth service. The first.

\* Since modified; see page 1025, *infra*.

† Now called "battle cruiser." ‡ Since altered to two submarines of "E" class.

instalment of the Australian fleet unit consisted of two torpedo boat destroyers, of British construction, commissioned in September 1910, and named *Parramatta* and *Yarra*. A third destroyer, the *Warrego*, was shipped to Sydney in parts, and was re-erected at the Commonwealth dockyard, Cockatoo Island, Sydney, and commissioned on 1st June, 1912. A description of these and the other vessels of the fleet will be found in Official Year Book No 6, pp. 1066-7.

The battle cruiser *Australia* was commissioned in June, 1913, and arrived in Australian waters in the following September. Two light cruisers, the *Melbourne* and *Sydney*, arrived in Australian waters in 1913. A third cruiser, the *Brisbane*, was built at the Commonwealth Naval Dockyard, Sydney. The two submarines arrived in Australian waters in May, 1914. Another cruiser, the *Adelaide*, is now building at the Commonwealth Naval Dockyard, at Cockatoo Island.

The completed vessels of the Australian Navy are participating in the European war. Both submarines have been lost on war service.

(iii.) *Modifications Adopted and Proposed.* Certain modifications have been made in the original scheme. These have been prepared in tabular form, and are as follows:—

#### FLEET UNIT.—ORIGINAL ESTIMATED COST.

(Imperial Defence Conference, 1909.)

1 Battle cruiser	...	...	...	£2,000,000
3 Protected cruisers, £350,000 each	...	...	...	1,050,000
6 Destroyers (including 3 ordered before the Conference),				
£80,000 each	...	...	...	480,000
3 Submarines, "C" class, £55,000 each	...	...	...	165,000
Total	...	...	...	<u>£3,695,000</u>

#### AMENDED ESTIMATED COST.

(Consequent on Alteration of Type of Vessels on Admiralty Recommendation.)

1 Battle cruiser	...	...	...	£2,000,000
3 Protected cruisers, £450,000 each	...	...	...	1,350,000
6 Destroyers, £80,000 each	...	...	...	480,000
2 Submarines, "E" class, £105,000 each	...	...	...	210,000
Total	...	...	...	<u>£4,040,000</u>

#### LATER ESTIMATED COST OF FLEET UNIT, TOGETHER WITH COST OF VESSELS NOT INCLUDED IN ORIGINAL FLEET UNIT.

1 Battle cruiser	...	...	...	£1,705,000
*3 Protected cruisers	...	...	...	1,400,000
*6 Destroyers	...	...	...	653,000
2 Submarines	...	...	...	233,500
Auxiliaries—				
1 Submarine depôt ship	...	...	£160,000	
1 Oil tank vessel	...	...	120,000	
4 Oil fuel storage vessels (building in				
Australia)...	...	...	75,766	
4 Hulks	...	...	25,000	
				<u>380,766</u>
Total	...	...	...	<u>£4,372,266</u>

\* Extra cost of building certain of these vessels in Australia is responsible for increase.



The following additional amount has been approved for new construction outside the original fleet unit and for increase in cost over estimate ... ..

935,563

Total ... .. £5,307,829

(iv.) *Expenditure on Fleet Construction for the Royal Australian Navy.* The following is a statement of expenditure out of sums appropriated for construction of fleet:—

#### EXPENDITURE OUT OF SUMS APPROPRIATED FOR CONSTRUCTION OF FLEET.

Year.	Appropriation.	Expenditure.
		£
1908-9 ...	Act No. 19 of 1908 ... ..	24,855
1909-10 ...	Act No. 19 of 1908 ... ..	223,959
1909-10 ...	Division No. 11A, New Works, etc. ... ..	60,000
1910-11 ...	Act No. 18 of 1910 ... ..	285,863
1910-11 ...	Division No. 12, New Works, etc. ... ..	850,000
1911-12 ...	Act No. 18 of 1910 ... ..	1,108,494
1912-13 ...	Act No. 18 of 1910 ... ..	524,037
1912-13 ...	Division No. 10, New Works, etc. ... ..	
1913-14 ...	Division No. 12, New Works, etc. ... ..	637,606
1914-15 ...	Division No. 13, New Works, etc. ... ..	467,296
1915-16 ...	Division No. 13, New Works, etc. ... ..	396,073
1916-17 ...	Division No. 17, New Works, etc. ... ..	374,249
1917-18 ...	Act No. 30 of 1917, New Works, etc. ... ..	355,397
Total ... ..		5,307,829

(v.) *Visit and Report by Sir Reginald Henderson.* At the invitation of the Government, Admiral Sir Reginald Henderson visited Australia to advise upon naval matters generally. A summary of his report will be found in Official Year Book No. 6, pp. 1067-8. It provided for 52 vessels and 15,000 men; expenditure on construction, works, etc., £40,000,000, with an ultimate annual naval vote of £4,794,000. Six naval bases, and eleven sub-bases, were recommended. The 52 vessels would consist of 8 armoured cruisers, 10 protected cruisers, 18 destroyers, 12 submarines, 3 depot ships, 1 fleet repair-ship, and the construction would extend over 22 years. The annual cost of *personnel* would be £601,000 in 1913-14, and would increase to £2,226,000 in 1933-4. Annual cost of maintenance of ships in commission would be £262,000 in 1913-4, rising to £1,226,000 in 1933-4. Annual expenditure on construction and maintenance of ships would increase from £2,349,000 in 1913-4 to £4,824,000 in 1932-3. The strength of the fleet would be 23 ships in 1918, 42 ships in 1923, 48 ships in 1928, and 52 ships in 1933. In the earlier years portion of the crews would be obtained from Great Britain, but this would cease in the period 1923-8.

(vi.) *The Compact with the Imperial Government.* The Australian Government is building its navy according to the terms of an official paper (cd. 5746-2) submitted to the Imperial Conference held in London in 1911, and on the plan formulated by Admiral Henderson (after an inspection of Australia's capitals and other ports and coast line, in 1911). There is no formal contract or agreement between the British and the Commonwealth Governments. The last actual agreement was that of 1903, already described on p. 1023. Before the expiration of the time for which this agreement was made, the Commonwealth began the work of fleet construction. Up to the year 1911-12, £200,000 was annually paid. For 1912-13, £175,000 was set down in the estimates, and £166,600

paid. The Commonwealth Parliament amended the *Naval Agreement Act 1903*, by No. 10 of 1912 (*Naval Agreement Act 1912*), providing that the Governor-General may, from time to time, arrange with the Imperial Government for the reduction of the Australian squadron, and for reduction in the naval subsidy. No amount under "Naval Agreement Act" will be found in the estimates for 1913-14 and later years. Some departures are made from Admiral Henderson's recommendations, but generally they have been adopted, so far as they relate to the work of the next few years. The Commonwealth is now fulfilling the larger obligation of fleet-building, and is maintaining its own vessels. The establishment of naval bases and sub-bases required for the fleet unit is also proceeding.

As already stated, the present situation is not governed by a formal contract or agreement. The Commonwealth Government has, by regulations and orders, given effect to some, and intends giving effect to others, of the items submitted to the Conference.

(vii.) *Naval College.* A naval college has been established at Captain's Point, Jervis Bay, consisting of numerous buildings necessary for the training of naval officers. The course is similar to that carried out in naval colleges in England. In September, 1918, there were 119 cadet midshipmen under training. There are also 17 officers, including naval instructors, and 68 members of the ship's company in residence at the college. A boy whose thirteenth birthday falls in the year in which the entrance examination is held, is eligible to compete provided he is the son of natural-born or naturalised British subjects. From amongst those qualified the Selection Committee chooses the number required. The Commonwealth Government bears the whole expense of uniforms, victualling, travelling, as well as that of the educational course.

(viii.) *Training Ships.* H.M.A.S. *Tingira*, moored in Rose Bay, Sydney, was commissioned in April, 1912, to train boys for the *personnel* of the Royal Australian Navy. The age of entry is  $14\frac{1}{2}$  to 16 years. Only boys of very good character and physique are accepted, after a strict medical examination. The boys must engage to serve until they reach the age of 25. The training lasts about one year, and they are then drafted to a sea-going warship of the Australian fleet. Recruiting has been satisfactory, there being 235 boys under training on 30th September, 1918.

(ix.) *The Naval Station of the Commonwealth of Australia.* The following are the limits of the Naval Station which, since 1st July, 1913, have been controlled by the Commonwealth Government, acting through the Naval Board:—On the North: From 95 degrees East longitude by the parallel of 13 degrees South to 120 degrees East longitude; thence North to 11 degrees South latitude; thence to the boundary with Dutch New Guinea, on the South coast, in about longitude 141 degrees East; thence along the coast of British New Guinea (Papua) to the boundary with German New Guinea, in latitude 8 degrees South; thence East to 155 degrees East longitude. On the East: By the meridian of 155 degrees East longitude to 15 degrees South latitude; thence to 28 degrees South latitude to the meridian of 170 degrees East longitude; thence South to 30 degrees South latitude; thence west to the meridian of 160 degrees East longitude; thence south. On the South: By the Antarctic Circle. On the West: By the meridian of 95 degrees East longitude.

4. *Vessels and Personnel of the Australian Navy.*—During the war, information is not published regarding the vessels and personnel of the Sea-going Forces of the Royal Australian Navy. The strength of the Permanent Sea-going Forces is approximately 400 officers and 4500 petty officers and men. Besides the Sea-going Forces, there is a R.A.N. Brigade, which is composed of Citizen Naval Trainees and men enlisted for Home Naval Service on shore (mostly returned soldiers). The personnel of the Sea-going Forces, which was originally largely composed of Imperial officers and men is now mainly Australian in character and will become more so as training schools and establishments for the higher and more technical grades are established after the war.

## § 3. Expenditure on Defence.

1. **Expenditure, 1912-13 to 1917-18.**—The following table gives the expenditure of the Department of Defence from 1912-13 to 1916-17, and the estimate for 1917-18:—

## EXPENDITURE ON DEFENCE, 1912-13 to 1917-18.

Branch or Department.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.	1917-18. Estimate
<b>Administrative — Central Administration</b> ... ..	£ *245,918	£ *217,804	£ *211,327	£ *367,967	£ *247,028	£ *161,343
Naval Forces ... ..	608,955	1,005,649	1,383,030	1,447,068	1,449,062	1,508,890
Military Forces ... ..	1,401,246	1,538,544	1,125,949	988,737	1,111,861	1,251,949
Rent, Repairs, and Maintenance ... ..	58,746	70,471	79,665	94,146	84,283	100,482
Additions, New Works, Lands, etc. ... ..	327,888	275,765	258,081	390,774	163,832	160,173
Military Stores ... ..	551,895	416,842	265,252	242,527	183,091	179,500
Audit Office ... ..	1,298	1,362	2,397	6,552	12,297	24,300
Pensions and Retiring Allowances ... ..	1,121	1,103	1,427	1,262	1,115	1,380
Supervision of Public Works by State Officers ... ..	4,935	7,773	6,119	4,573	2,831	3,250
Naval Agreement† ... ..	166,600	...	...	...	...	...
Fleet Unit ... ..	585,342	753,633	568,204	396,072	374,249	400,000
Naval Works ... ..	268,393	218,839	362,782	789,400	913,265	192,815
Interest and Sinking Fund on Transferred Properties ... ..	122,561	94,858	177,741	128,439	129,570	129,570
Miscellaneous ... ..	1,307	252	3,320	5,798	522	5,828
Sites for Defence purposes ... ..	...	136,497	66,364	120,558	129,809	4,200
Machinery, etc., Cockatoo Is. ... ..	...	...	42,782	66,840	§	§
Proportion Public Works Staff Salaries ... ..	...	12,908	13,881	21,320	19,200	20,250
<b>Total (ordinary) ... ..</b>	<b>4,346,305</b>	<b>4,752,300</b>	<b>4,568,321</b>	<b>5,072,183</b>	<b>4,822,015</b>	<b>4,143,930</b>
<b>Buildings and Sites provided from loan funds ... ..</b>	<b>...</b>	<b>...</b>	<b>...</b>	<b>...</b>	<b>...</b>	<b>966,403</b>
<b>War Expenditure† ... ..</b>	<b>...</b>	<b>...</b>	<b>15,011,335</b>	<b>41,201,946</b>	<b>61,535,891</b>	<b>97,160,581</b>
<b>Total Expenditure on Defence... ..</b>	<b>4,346,305</b>	<b>4,752,300</b>	<b>19,579,656</b>	<b>46,274,129</b>	<b>66,357,906</b>	<b>102,270,914</b>

\* Includes establishments under the control of the Central Administration. † Ceased on 30th June, 1913. ‡ Details of war expenditure will be found on page 1033. § Included in naval forces above.

2. **Appropriation for Defence Purposes, 1901-2 to 1917-18.**—In the following table the Defence expenditure for the whole Commonwealth period, 1901-2 to 1917-18, is given:—

## ANNUAL DEFENCE EXPENDITURE.

Year.	Naval.			Military.			Total Defence Expendi- ture.
	Under Ordinary Votes and Appropriations.	Works, Arms, Equip'm't. &c. (provided under Estimates for New Works and Buildings).	Total Naval.	Under Ordinary Votes and Appropriations.	Works, Arms, Equip'm't. &c. (provided under Estimates for New Works and Buildings).	Total Military.	
1901-2 ... ..	£ 178,819	£ ...	£ 178,819	£ 777,620	£ 2,640	£ 780,260	£ 959,079
1902-3 ... ..	149,701	...	149,701	595,115	5,537	600,652	750,353
1903-4 ... ..	240,005	86	240,091	502,517	113,156	615,673	855,764
1904-5 ... ..	200,394	5,394	205,788	533,945	194,865	728,810	934,598
1905-6 ... ..	250,273	1,743	252,016	548,439	169,890	718,329	970,345
1906-7 ... ..	285,190	652	285,842	585,516	194,507	780,023	1,035,795
1907-8 ... ..	289,247	250,958	540,205	634,579	189,960	824,539	1,334,744
1908-9 ... ..	283,207	4,065	287,262	886,365	96,965	983,330	1,050,592
1909-10 ... ..	289,051	60,668	329,739	928,393	277,273	1,205,666	1,535,405
1910-11 ... ..	303,493	1,161,541	1,465,034	1,092,305	448,687	1,540,992	3,006,026
1911-12 ... ..	461,546	1,172,920	1,534,466	1,667,103	780,279	2,447,382	4,081,848
1912-13 ... ..	806,881	853,735	1,660,616	1,805,806	879,883	2,685,689	4,346,305
1913-14 ... ..	1,006,424	980,677	1,987,101	1,944,297	820,902	2,765,199	4,752,300
1914-15 ... ..	5,991,776	936,081	6,970,639*	12,024,415	584,602	12,609,017	19,579,656
1915-16 ... ..	7,501,565	1,216,637	8,785,042†	36,765,044	724,043	37,489,087	46,274,129
1916-17 ... ..	7,807,558	1,359,919	9,267,475	56,685,097	405,334	57,090,431	66,357,906
1917-18* ... ..	6,844,780	197,015	8,116,795‡	93,523,043	339,673	94,154,119§	102,270,914

\* Includes £42,782 loan expenditure on works. † Includes £66,840 loan expenditure on works.

‡ Includes £1,075,000 loan expenditure on works. § Includes £291,403 loan expenditure on works.

NOTE.—In the year 1900-1 the approximate Defence Expenditure made by the States was:—

Ordinary Services ... ..	£800,000
Works, Arms, Equipment, etc. ... ..	200,000

Total ... .. £1,000,000

3. **Special War Expenditure.**—The special war expenditure during the present war will be found on page 1033.

4. **Expenditure in Various Countries.**—The total expenditure on defence and the expenditure per inhabitant in various countries according to estimates made immediately prior to the present war, were as follows:—

**ESTIMATED EXPENDITURE ON DEFENCE.—VARIOUS COUNTRIES.**

Country.	Year.	Army.	Navy.	Total.	Per Inhabitant.	
		£.	£	£	s.	d.
Great Britain ...	1913-14	28,220,000	46,309,000	74,529,000	32	3
Germany ...	1913-14	73,833,000	24,012,000	97,845,000	30	2
France ...	1913	38,286,000	18,452,000	56,738,000	28	7
Italy ...	1913-14	14,546,000	9,068,000	23,614,000	13	7
Austria-Hungary ...	1913	16,500,000	3,100,000	19,600,000	7	8
Switzerland ...	1913	1,772,000	...	1,772,000	9	1
Russia ...	1913	64,136,000	22,817,000	86,953,000	10	5
Spain ...	1913	6,391,000	2,827,000	9,218,000	9	3
Portugal ...	1913-14	2,190,000	851,000	3,041,000	10	3
Norway ...	1913-14	867,000	337,000	1,204,000	9	11
Sweden ...	1913	3,063,000	1,447,000	4,510,000	16	0
Denmark ...	1913-14	1,081,000	544,000	1,625,000	11	5
Holland ...	1913	2,780,000	1,678,000	4,458,000	14	6
Belgium ...	1913	3,260,000	...	3,260,000	8	7
United States ...	1913-14	35,073,000	29,464,000	64,537,000	14	0
Canada ...	1912-13	1,872,000	...	1,872,000	5	2
Japan* ...	1913-14	7,815,000	4,224,000	12,039,000	3	6
Australia† ...	1914-15	2,062,396	2,505,885	4,568,281	18	6

\* Excluding extraordinary expenditure. † Total excluding special war expenditure.

**§ 4. Industrial Establishments and Remount Depot.**

1. **Commonwealth Factories.**—There are five factories established under the authority of the Defence Act in connection with the Defence Department. The Commonwealth Harness, Saddlery, and Leather Accoutrements Factory at Clifton Hill, Victoria, was opened in September, 1911. On 31st March, 1918, there were 158 persons employed, including 58 females. A large quantity of harness and saddlery, and leather and canvas equipment has been turned out for the Defence and Postmaster-General's Departments. The factory is now able to cope with practically the whole of the peace requirements of these departments in the way of leather and canvas equipment. At the Cordite Factory at Maribyrnong, Victoria, cordite is manufactured for the cartridges required for military purposes. On 31st March, 1918, the employees numbered 187. The Clothing Factory at South Melbourne, Victoria, commenced operations on 3rd January, 1912. Since 1st July, 1912, a satisfactory output has been maintained. The number of employees on 31st March, 1918, was 622, of whom 536 were females. The establishment is able to supply the whole of the uniform clothing required for the Defence Forces and the Postmaster-General's Department. The Small Arms Factory at Lithgow, N.S.W., was opened on 1st June, 1912. The first instalment of Australian arms was delivered in May, 1913. Employees numbered 1300 on 31st March, 1918. A fifth Commonwealth factory has been established at Geelong, Victoria, for uniform materials and woollen fabrics, and commenced operations the latter part of 1915. 249 persons were employed on 31st March, 1918, including 119 females.

2. **Expenditure.**—The value on 30th June, 1917, of land, machinery and plant, factory fittings, and furniture in connection with the factories now in operation, was approximately as follows:—

Small Arms Factory...	...	...	...	£230,082
Cordite Factory ...	...	...	...	140,882
Clothing Factory ...	...	...	...	24,985
Harness Factory ...	...	...	...	16,273
Woollen Cloth Factory ...	...	...	...	156,811

**3. Remount Depot.**—The Act of 1910 authorised the establishment and maintenance of horse depots, farms, and stations for the breeding of horses. Up to the present nearly 2000 remounts have been purchased. They are primarily to supply the requirements of the Field Artillery Batteries, but are also available for the use of other mounted units. Remount depots have been purchased or are leased in each of the military districts, and veterinary hospitals have also been established in the larger States. In Victoria and South Australia stables have been built. A remount section of the Army Service Corps has been formed for the purpose of breaking, training and looking after remounts generally. These sections were so organised as to be capable of rapid expansion in case of emergency, and when war was declared in 1914 little difficulty was experienced by the Remount Service in coping with the enormous task of obtaining and training horses for the mounted units of the A.I.F. and in providing for the shipment of horses to Egypt and India as required.

### § 5. Australian Contingents.

**1. New Zealand and Sudan Campaigns.**—Many colonists served with the Imperial forces in the New Zealand war. Fuller particulars will be found in Official Year Book No. 6, p. 1071. In 1885 a field battery, an infantry battalion, and an ambulance corps, numbering in all 770, with 218 horses, left New South Wales to take part in the Suakin campaign.

**2. South African War.**—In 1899 the outbreak of war with the Boers led to the several colonies offering contingents. This service was continued when, on 1st March, 1901, the control of the defence forces passed over to the Commonwealth. Besides the troops officially organised, many Australians served as members of units raised in Great Britain and South Africa. The following table shews the strength of the military contingents sent at various times from Australia to South Africa:—

**STRENGTH OF MILITARY CONTINGENTS SENT FROM AUSTRALIA TO SOUTH AFRICA.**

State.	State Troops at State Expense.			State Troops at Imperial Expense.			Commonwealth Troops.			Grand Total.		
	Officers.	Other Ranks.	Horses.	Officers.	Other Ranks.	Horses.	Officers.	Other Ranks.	Horses.	Officers.	Other Ranks.	Horses.
New South Wales ...	160	3,217	3,135	76	1,308	1,443	78	1,271	1,294	314	5,796	5,873
Victoria ...	47	751	830	77	1,569	1,877	69	1,052	1,118	193	3,372	3,825
Queensland ...	39	694	868	73	1,346	1,803	37	699	736	149	2,739	3,207
South Australia ...	20	326	258	46	644	696	23	467	490	89	1,437	1,444
Western Australia ...	18	331	269	34	540	608	15	291	306	67	1,162	1,183
Tasmania ...	6	173	58	17	358	422	13	290	303	36	821	783
<b>Total ...</b>	<b>290</b>	<b>5,492</b>	<b>5,418</b>	<b>323</b>	<b>5,765</b>	<b>6,649</b>	<b>235</b>	<b>4,070</b>	<b>4,247</b>	<b>848</b>	<b>15,327</b>	<b>16,314</b>

There were, in addition, several special service officers attached, at the request of the colonial Governments, to the British forces; these officers served with the Imperial troops with a view to aiding the development of the Commonwealth forces, particularly in regard to the routine and administration of troops on service.

**3. The China War.**—The Home Government also accepted the offer of contingents from Australia on the outbreak of the Boxer rebellion in China. Naval volunteers were furnished by New South Wales and Victoria, and South Australia equipped a gunboat for the Imperial service. The strength of the New South Wales contingent was 260, and that of the Victorian 200, of all ranks.

**4. The European War, 1914.**—Upon the imminence of war between Great Britain and Germany, but prior to its actual outbreak, viz., on 3rd August, 1914, the Commonwealth Government notified Great Britain of its readiness, in the event of war, to place

the vessels of the Australian Navy under the control of the British Admiralty when desired, and to despatch an expeditionary force of 20,000 men of any suggested composition to any destination desired by the Home Government, cost of despatch and maintenance to be borne by the Commonwealth. On 10th August, war having meanwhile been declared on the 4th August, all vessels and all officers and seamen of the Royal Australian Naval Forces were transferred to the King's Naval Forces. The transfer is to continue in force until proclamation is issued that war no longer exists. Upon the suggestion of the Imperial authorities it was decided that the composition of the expeditionary force of 20,000 should be a division, on the basis of the Imperial Army (of staff, three brigades, and divisional troops, but without howitzer brigade and heavy battery), and one light-horse brigade. After this force had been raised, the Commonwealth notified the Home Government that a further body of troops, comprising lines of communication units, supply units, and hospitals (about 2000), first reinforcements (about 3000), two additional light-horse brigades (about 4000), an additional infantry brigade (about 4500), and certain veterinary units, would be despatched. The first convoy left the rendezvous in Australian waters on 1st November, and landed in Egypt on 5th December, for the defence of that country—which had been proclaimed a British protectorate—and to undergo war training in the vicinity of Cairo. The second convoy left Australia late in December. After the departure of the second convoy, the system of despatching troops in convoys was discontinued.

(i.) *Australian Imperial Force.* Up to 31st March, 1918, the troops despatched from Australia for active service numbered 315,326. These were organised chiefly into the undermentioned units, some of which have since been disbanded or absorbed into other units:—

(a) *Army Corps Troops—*

- 2 Army Corps Mounted Regiments.
- 2 Corps Cyclist Battalions.
- 3 Army Field Artillery Brigades.
- Army Corps Engineers.
- Army Corps Wireless Telegraph Section.
- Entrenching Battalion.
- Topographical Section.
- Police Corps.

(b) *Mounted Division—*

- 4 Light Horse Brigades (12 Regiments).
- 4 Machine Gun Squadrons.
- Field Squadron Engineers.
- 2 Field Troops                   ,,
- Signal Squadron               ,,
- 4 Signal Troops               ,,
- Mounted Divisional Train (A.S.C.).
- 2 Depot Units of Supply.
- 4 Mobile Veterinary Sections.

(c) *5 Divisions—*

- 15 Infantry Brigades (60 Battalions).
- 5 Pioneer Battalions.
- 15 Machine Gun Companies.
- 10 Field Artillery Brigades (40 Batteries).
- 5 Divisional Ammunition Columns.
- 45 Trench Mortar Batteries.
- 15 Field Companies Engineers.
- 5 Divisional Signal Companies.
- Wireless Signal Sections.
- 5 Divisional Trains, 20 Companies (A.S.C.)
- 5 Field Bakeries.

- 5 Field Butcheries.
- 25 Depot Units of Supply.
- Motor Ambulance Workshop.
- 5 Mobile Veterinary Sections.
- 15 Field Ambulances.
- 5 Sanitary Sections.
- 5 Infantry Base Depots.

(d) *Miscellaneous Units—*

- Siege Artillery Brigade (2 Batteries).
- 4 Service Flying Squadrons.
- 3 Training Flying Squadrons.
- Aeroplane Squadron ( $\frac{1}{2}$  Flight) for service in Mesopotamia.
- Mining Corps (3 Companies).
- 3 Tunnelling Companies.
- Electrical and Mechanical Mining and Boring Company.
- Naval Bridging Train.
- Divisional Ammunition Park.
- 5 Divisional Supply Columns.
- Reserve Park.
- Armoured Motor Car Section.
- Railway Supply Detachment.
- 5 Railway Sections.
- 2 Remount Units.
- Remount Section.
- 2 Veterinary Sections.
- Veterinary Hospital.
- Wireless Signal Squadron for service in Mesopotamia.
- 3 Battalions Imperial Camel Corps (12 Companies).
- Camel Brigade Field Ambulance.
- Cavalry Divisional Signal Squadron for service in Mesopotamia.
- 4 General Hospitals.
- 3 Casualty Clearing Stations.
- 3 Auxiliary Hospitals.
- 2 Stationary Hospitals.
- Dermatological Hospital.
- Salvage Corps.
- Army Ordnance Corps.
- Army Ordnance Corps (I.O.M. Section).
- 2 Hospital Ships.
- Dental Services.
- Nursing Services.
- Other Administrative, Training and Departmental Units.
- Naval and Military Expeditionary Force (for service in New Guinea).

*Troops in Training.*—In addition to the above units, on the 31st March, 1918, there were 7397 troops in training throughout Australia in preparation for despatch to the front.

*Reinforcements.*—Reinforcements are despatched monthly for all units of the A.I.F. and from time to time as required, for the troops serving in Mesopotamia and German New Guinea.

*Enlistment.*—Enlistment is for General Service, except for technical arms such as Flying Corps, Siege Artillery, Railway Sections, Wireless and Skilled Medical details.

(ii.) Towards the end of April, 1915, a body of Australian troops left Egypt for the Dardanelles, and on the 25th April came under fire. Acting in conjunction with British, Indian, and French troops, and under the command of General Sir Ian Hamilton, who,

as Inspector-General of Oversea Forces, had visited Australia shortly before the outbreak of war (see Official Year Book No. 7, p. 1067), they attacked positions on the Gallipoli Peninsula (Dardanelles). The operation is regarded as having been exceedingly difficult, but the allied troops effected a landing in the face of determined resistance. Towards the end of December, 1915, it was decided to evacuate the Gallipoli Peninsula. This difficult operation was successfully carried out, and the main portion of the Australian Imperial Force has since been transferred to other spheres of activity. The number of casualties announced by the Defence Department to 31st March, 1918, are as follows:—

#### CASUALTIES IN AUSTRALIAN IMPERIAL FORCE TO 31st MARCH, 1918.

						All Ranks.
Deaths from wounds or disease	...	...	...	...	...	*43,475
Missing and prisoners	...	...	...	...	...	*3,627
Casualties from wounds or gas	...	...	...	...	...	116,594
Sick	...	...	...	...	...	68,414
Casualties not specified	...	...	...	...	...	*214
Total	...	...	...	...	...	232,324

The figures marked \* represent actual net totals after all corrections consequent upon erroneous and later advices, etc., have been taken into account. The wounded and sick represent totals reported by cable and are in excess of the actual number of men affected, because many are admitted to hospital more than once.

(iii.) Upon suggestion of the Imperial Government, the Commonwealth also despatched an expeditionary force against certain German possessions in the Pacific Ocean. The force contained both naval and military details, and consisted of six companies of the Royal Australian Naval Reserve, one battalion (eight companies) of infantry, two sections of machine guns, a signalling section, and army medical details.

The main objects of the expedition were to seize German wireless stations in the Pacific, to occupy German territory and hoist the British flag, and to arrange for temporary administration.

A complete self-contained force of the above-named units, fully armed and equipped, left Sydney on 19th August, 1914, under escort of vessels of the Royal Australian Navy.

The Naval Board, besides distributing the orders and instructions of the Admiralty, under whose control the Royal Australian Navy was placed, arranged for the supply of coal, oil, stores, munitions, etc., and for the dissemination of intelligence. The task of the Australian Navy was of a three-fold nature: (a) to police the seas and ensure that they should be uninterruptedly free to commerce; (b) to co-operate in ridding the seas of the enemy's cruisers and in destroying his bases and sources of supply; (c) to assist in conveying the expeditionary forces to Europe and to the German Pacific possessions.

The operations against the German colonial troops resulted, within two months, in the capture of the whole of the enemy's possessions in the Pacific. The German Pacific wireless chain was broken. Several of her ships were captured. Samoa was occupied by a force from New Zealand. The German Pacific Protectorate (*Das Deutsches Südsee Schutzgebiet*) was terminated. It comprised German New Guinea, the Bismarck Archipelago, the two northernmost islands of the Solomon group (Bougainville and Buka), the choicest island of the Samoan group (now occupied by New Zealand), the Marshall Islands, the Carolines, Pelew, and the Ladrões (except Guam, which belongs to America). Of these groups, the Bismarck Archipelago is the most important. It includes New Britain, New Ireland, New Hanover, and several small islands—the Admiralty, Natty, Exchequer, Hermit, Anchorite, French, Gervit Denys, Sir Charles Hardy, St. John, St. Mathias, Squally Islands, and others.



For the various actions in which the Australian Navy was thus employed, and in order to make possible the efficient patrolling of the vast sea-area involved, it was necessary that ample supplies of coal and oil should be available at the various advanced bases. It is stated that the large chartered fleet of colliers and oilers conducted their operations without any delay. From 30th July, 1914, to 31st December, 1914, the ships of the Australian Navy steamed in the aggregate upwards of 100,000 miles. It was necessary, to enable them to do so, to convey, over great distances of ocean, 76,000 tons of coal, and 12,000 tons of oil.

Further, not a single British merchant vessel was captured by the enemy in Australian waters. No Australian port was attacked, nor were coastal towns terrorised. But 19 German steamers, aggregating 89,000 tons; one Austrian steamer of 3530 tons; and five German sailing vessels, aggregating 12,200 tons—in all 25 vessels, aggregating 104,730 tons—were interned. Also, 11 vessels, aggregating 12,000 tons, and including the German Government's vessels *Komet*, *Nusa*, etc., were captured.

During 1915 the battle cruiser *Australia* joined the Grand Fleet in the North Sea, and was made flagship of a battle cruiser division. The other ships of the Australian Navy, with the exception of Submarine AE2, which was lost during the operations at the Dardanelles, are taking their part in the war as and where the Imperial authorities find them most useful.

(iv.) *Special War Expenditure, 1914-18.* The estimate of special war expenditure as given in the annual estimates, 1917-18, is shown below. The war expenditure for the three previous years is also given. Reference to War Finance will be found in Section XIX., Commonwealth Finance, pp. 775 and 782.

SPECIAL WAR EXPENDITURE, 1914-18.

Particulars.	1914-15.	1915-16.	1916-17.	1917-18.*
	£	£	£	£
Special expenditure on Expeditionary and Australian forces—				
Naval ... ..	4,288,253	5,249,166	4,089,919	4,115,750
Military ... ..	10,232,787	32,474,340	47,667,248	73,317,630
Interest on loan from British Government for war purposes ... ..	36,489	843,893	2,082,258	2,264,220
Interest on Commonwealth War Loan ... ..	...	999,976	2,723,823	5,425,720
Interest on Treasury Bills in aid of Revenue ... ..	78,656	14,845	14,485	...
Sinking Funds on Loans for War Purposes ... ..	...	200,777	1,167,127	771,260
Grant to Australian Soldiers' Repatriation Fund ... ..	...	250,000	...	1,000,000
War Pensions ... ..	437	139,460	1,185,907	2,637,168
War Census ... ..	...	57,444	11,711	...
Referendum Military Service ... ..	...	...	79,427	85,385
Trading Vessels ... ..	153,973	318,285	674,565	1,000,000
Miscellaneous ... ..	219,305	643,170	756,900	75,783,318
Premiums on Life Assurance policies of Commonwealth public servants who are members of Expeditionary forces ... ..	1,435	10,590	1,082,521	760,130
Total ... ..	15,011,335	41,201,946	61,535,891	97,160,581

\* Estimate. † Included in the estimate for 1917-18 are amounts of £3,850,000, advances to States for construction and erection of silos for wheat storage (to be recovered); and £2,000,000, advances to States for settlement of returned soldiers on the land.

(v.) *War Pensions.* Pensions payable under the War Pensions Act 1914 in case of death or incapacity are on the following scale:—

### SCALE OF PENSIONS PAYABLE.

(a) To widow on death of member of forces, or to member upon total incapacity:—

Rate of Pay of Member per day at date of Death or Incapacity.	Pension Payable to Widow per fortnight.	Pension Payable to Member upon Total Incapacity per fortnight.	Rate of Pay of Member per day at date of Death or Incapacity.	Pension Payable to Widow per fortnight.	Pension Payable to Member upon Total Incapacity per fortnight.
s. d.	£ s. d.	£ s. d.	s. d.	£ s. d.	£ s. d.
6 0	2 0 0	3 0 0	13 0	2 19 0	3 14 0
7 0	2 3 0	3 2 0	17 6	3 10 0	4 0 0
9 0	2 9 0	3 6 0	22 6	3 17 6	4 5 0
10 0	2 12 3	3 8 0	30 0	4 9 0	4 15 0
10 6	2 13 9	3 9 0	37 6	5 0 9	5 5 0
11 6	2 16 0	3 11 0	45 0	5 12 3	5 15 0
12 0	2 17 3	3 12 0	50 0	6 0 0	6 0 0
			and upwards		

(b) To each child (son, daughter, stepson, stepdaughter, or adopted child of member of forces, under 16):—Twenty shillings per fortnight for the first child, fifteen shillings per fortnight for the second child, and ten shillings per fortnight for the third and each subsequent child.

(c) To other dependents (dependent members of family of deceased or incapacitated member of forces):—Rates as assessed by Commissioner or Deputy-Commissioner, but not exceeding for one person the rate specified in the second column above as payable to the widow, and not exceeding in the aggregate that sum, plus £2 per fortnight.

(d) To wife of member of forces upon his total incapacity:—50 per cent. of rate payable to husband.

(e) To each child of member upon his total incapacity:—Same as (ii.) above.

(f) To member upon partial incapacity:—Loss of leg or foot or hand or arm—maximum rate for six months, thereafter three-fourths of the maximum rate. Loss of one eye—half the maximum rate. Loss of both legs or both feet, or both arms or both hands, or arm and leg or hand and foot, or both eyes, or one eye together with loss of leg, foot, hand or arm—the maximum rate.

## § 6. Special Defence Legislation.

1. *War Precautions Act 1914.*—On the outbreak of war in Europe, the Federal Parliament passed an Act to enable the Governor-General to make regulations and orders for the safety of the Commonwealth during the state of war. The provisions of this Act, which was assented to on 29th October, 1914, will be found in Official Year Book No. 8, page 1092. Particulars of the *Enemy Contracts Annulment Act* will be found in the same issue of the Year Book, page 1095.

2. *War Precautions Acts 1914-16 and War Precautions Regulations 1915.*—The *War Precautions Act 1914* abovementioned, as amended by the *War Precautions Act 1915*, the *War Precautions Act No. 2 1915*, and the *War Precautions Act 1916*, empowers the Governor-General to make regulations and orders for securing the public safety and the defences of the Commonwealth. Any person who contravenes or fails to comply with any provision of any regulation or order is guilty of an offence, the punishment for which is, if prosecuted summarily, a fine not exceeding £100, or imprisonment for a term not exceeding six months, or both; if the offence is prosecuted by indictment, a fine of any amount or imprisonment for any term, or both or if the offence is prosecuted by Court Martial, the same punishment as if the person had been subject to military law, and had on active service committed an offence under section 5 of the Army Act.

Under the powers conferred by the above Acts, the *War Precautions Regulations 1915* have been made. These regulations provide for the appointment of competent naval or military authorities to exercise certain powers under the regulations. The principal provisions of the regulations are as follows:—

Regulation 3. The ordinary avocations of life and the enjoyment of property are to be interfered with as little as may be permitted by the exigencies of the measures required to be taken for securing the public safety and the defence of the Commonwealth, and ordinary civil offences are to be dealt with by the civil tribunals in the ordinary course of law.

4. The competent authorities are authorised to take possession of land, buildings, equipment, and warlike stores, to construct works, to destroy buildings, and to do any act involving interference with private rights of property which may be necessary for securing the public safety or defence of the Commonwealth.

5. Competent authorities are given the right of access to any land or buildings.

6. Land may be used for training the forces.

7. Roads may be stopped up.

8. The removal of vehicles, boats, vessels, aircraft, animals, foodstuffs, equipment, and warlike stores from any area may be ordered.

9. A census may be taken of all goods, animals, and other commodities.

10 and 11. The Minister may requisition the output of factories manufacturing arms, ammunition, etc., and may take possession of such factories.

12, 12A and 12B. Premises licensed for the sale of intoxicating liquor may be closed and the sale of liquor in specified areas may be prohibited.

13 and 14. The extinguishment or obscuring of lights in any area may be ordered.

15. Inhabitants may be ordered to remove from any area if necessary for naval or military reasons.

15A. Persons may be removed from the vicinity of military camps, forts, hospitals, or posts if their presence is prejudicial to the maintenance of discipline or to the health, training, or administration of the troops.

16. Inhabitants may be required to remain indoors.

16A. Meeting of associations, clubs, etc., the members of which consist mainly of persons of enemy origin or descent, may be prohibited.

17. Ships may be removed from specified areas.

17A. Entrance to British merchant ships in harbours or alongside wharves without permission is forbidden.

17B. Entrance to enclosed wharves without permission is forbidden.

17D. Members of the forces may be prevented from entering any premises specified in an order of the competent authority.

17E. Persons who are defaulters from military service in New Zealand may be required to return to that Dominion.

17EA. Reservists of Allied Powers who refuse to render military service when called upon by their Consuls may be punished.

17EE. Power is given to the Naval Board to provide for the enclosure, light and provision of buildings on wharves.

17F. Power is given to search persons and goods on ships and wharves.

17G. Orders may be given for the removal of dangerous goods, etc., from wharves.

18. Harbour authorities may be required to prepare schemes for destruction of harbour works.

19. The obtaining and communicating of naval and military information without permission is prohibited.

19A. Communication with enemy agents is prohibited; communication with spies is prohibited.

19B. Postal articles intended for enemy countries to bear endorsement that they are so intended.

19C. The unlawful possession, etc., of official documents is made an offence.

20. The photographing of naval or military works without permission is prohibited.
21. Tampering with telegraphic apparatus is prohibited.
- 21A. Telephone conversations not in the English language are prohibited.
22. The possession of carrier pigeons in any area prescribed by order of the competent authority is prohibited.
23. The possession of wireless telegraphic apparatus without the permission of the Minister for the Navy is prohibited.
- 23A. The possession of ciphers, codes, or other means of secretly communicating naval or military information is prohibited, unless intended and used solely for commercial or other legitimate purpose.
24. The embarkation of persons suspected of communicating with the enemy may be prohibited.
25. The transmission of letters to or from the Commonwealth otherwise than through the post is prohibited.
- 25A. The conveyance of letters to or from interned persons without the authority of the officer commanding the place of internment is prohibited.
- 25B. Persons carrying on the business of receiving for reward letters or postal packets for delivery to other persons are required to register with the Censor.
- 25C. Books published in Australia and newspapers, magazines or periodicals wherever published may not be sent out of the Commonwealth to neutral or enemy countries except by publishers or newsagents who have obtained permission from the censorship.
26. The use of searchlights, semaphores, or other apparatus intended for signalling is prohibited.
- 26A. Notice must be given to the Military Commandant before aircraft are navigated for a distance of more than 50 miles.
27. The display of fireworks or the lighting of fires in such a manner as would serve as a signal, guide, or landmark is prohibited.
- 27A. Persons who advocate disloyalty or hostility to the British Empire may be punished.
- 27B. Persons who wear or display any badge, flag, banner, emblem or symbol of an enemy country, or of a disaffected body or association, or of the Sinn Fein movement, may be punished.
- 27C. Power is given to close places of public resort and clubs, the use of which is prejudicial to the public safety or the defence of the Commonwealth.
28. The spreading of false reports, or the making of false statements, or reports or statements likely to cause disaffection to His Majesty, or public alarm, or to interfere with the success of His Majesty's forces by land or sea, or to prejudice His Majesty's relations with foreign powers, and the spreading of reports or making of statements likely to prejudice the recruiting, training, discipline, or administration of His Majesty's forces, is prohibited.
- 28A. Power is given to require newspapers to submit to the Censor matter relating to the war before printing or publication.
- 28AA. Power is given to require writers of pamphlets to submit to the Censor before publication matter relating to recruiting.
- 28AB. Power is given to declare publications to be prohibited, and the possession of any prohibited publication is made an offence.
- 28AC. Power is given to seize injurious printed matter.
- 28AD. Persons who print, publish, sell or distribute any matter forbidden by the censorship, may be punished.
- 28B. Newspapers and other publications published in foreign languages may be suppressed.
- 28C. Alterations made by the censorship in matters submitted to it are not to be shewn in print without permission.
- 28D. The submission of cinematograph films relating to the war may be required before they are exhibited.

29. Trespassing on or loitering in the vicinity of tunnels, viaducts, or culverts, and injuring or being upon railways, or on, under, or near railway works with intent to injure them, is prohibited.

30. Approaching military works in respect of which orders prohibiting approach have been issued is an offence.

31. The manufacture or sale of firearms, ammunition, or explosives within any specified area may be prohibited.

32. The importation of firearms, ammunition, or explosives without permission is prohibited.

33. Any person who, by discharging firearms or otherwise, endangers the safety of any member of the forces, is guilty of an offence.

34. Any person who, without permission, is in possession of firearms, explosives, or inflammable liquids in the vicinity of any railway, dock, or harbour, or in the vicinity of any specified area, is guilty of an offence.

35. Restrictions are placed on the storage of inflammable liquids in any area specified in an order of the competent authorities.

36. The possession of celluloid or cinematograph films in any prescribed area without permission is prohibited.

37. Masters of vessels are required to comply with any directions given for navigation in harbours.

38. Vessels are required to comply with any directions as to navigation issued by the Naval Board.

39. Vessels may be prohibited from entering dangerous areas.

40. The Naval Board may issue orders as to pilotage.

40A. Any person who by act or default endangers the safety of any vessel is guilty of an offence.

40B. Seamen on ships chartered, etc., by the Commonwealth or Imperial Government who desert, are declared guilty of an offence against the Act.

40C. Persons who interfere with the discharge, loading, etc., of ships may be punished.

40D. Persons who interfere with shearing may be punished.

41. The supplying of intoxicants to members of His Majesty's forces, when on duty or when not on duty, with intent to elicit information, is prohibited.

41A. Intoxicating liquors in camps, forts, hospitals, or military posts are prohibited.

41B. The use of drugs interfering with medical examination of recruits is prohibited.

41C. Persons who make false statements on attestation papers may be punished.

41D. Power is given to State Recruiting Committees to compel the exhibition of recruiting films in picture theatres.

42. The unauthorised use of naval or military uniforms is prohibited.

42A. The sale of uniforms or parts of uniforms without permission is prohibited.

42AA. Power is given to prohibit the sale of articles of equipment the use of which may be dangerous, or in respect of which untrue or misleading statements are made.

42B. Use, without permission of Minister, of badges, etc., intended to indicate that the wearer is a person rejected for active service, is forbidden.

42C. Sale of phosphorus without permission is prohibited.

42D. Dyeing military clothing is prohibited.

43. Persons attempting to cause mutiny, sedition, or disaffection among the forces or the civil population are guilty of an offence.

44. Persons obstructing, misleading, or interfering with or withholding information from officers or persons carrying out the orders of the competent authorities, are guilty of an offence.

44A. Persons who supply short quantities or short weight for the Forces may be punished.

45. Falsifying reports, etc., is an offence.

45A. The making of untrue statements in applications for separation allowances, etc., is made an offence.

45B. Falsely pretending to be a returned soldier or sailor is made an offence.

46. The forging of certain official documents, and personating persons to whom such documents have been issued, is an offence.

46A. Assisting the escape of prisoners of war is an offence.

47. Persons in possession of false passports or letters of safe conduct, and alien enemies passing under assumed names, are guilty of an offence.

47A. The right of any relative or dependant of a soldier to receive allotments of his pay or separation allowance is made incapable of assignment.

47B. Allotment of soldiers' pay and separation allowance is declared to be non-assignable.

47C. Defacing posters, etc., issued by the Department of Defence or the Department of the Navy is prohibited.

47D. Articles supplied or issued by the Red Cross are not to be sold.

48. All persons affected by any orders issued under the Regulations are required to comply therewith.

49. Attempting to commit an offence, aiding or abetting an offence, or harbouring any person who has committed an offence, is forbidden.

49E. The sale of sugar at a price exceeding 3½d. per lb., plus such sum as represents the cost of delivery to the seller, is forbidden.

50, 50A, and 50B. Powers are given to search premises and persons, and to seize articles found thereon.

51. Power is given to stop and search vehicles.

52. Power is given to require answers to questions relative to any matter affecting the public safety or the defence of the Commonwealth, and to require the production of documents, books, and papers relative to any such matter.

53. Powers are given for preventing the conveyance of letters into or out of the Commonwealth otherwise than through the post.

54. Powers of arrest are given.

54A. The embarkation of suspected persons may be prohibited.

55. The Minister is authorised to direct the detention, in military custody, of any naturalised person who is disaffected or disloyal.

56. The Minister is authorised to direct the detention, in military custody, of any natural-born British subject, one at least of whose parents was, or is, a subject of a State which is at war with the King.

56A. The Minister is authorised to direct the detention, in military custody, of any person if, in his opinion, for securing the public safety and the defence of the Commonwealth, it is expedient, in view of the hostile origin or association of such person, that he should be so detained.

56B. Male British subjects between the ages of 17 and 45 years are prohibited from leaving the Commonwealth, unless in possession of a passport issued by the Department of External Affairs.

56C. Persons detained in military custody, under the warrant of the Minister, are declared to be subject to the rules of discipline applicable to prisoners of war.

57 and 58. Provision is made for trial of offences.

58A. Provision is made for the punishment of offences by corporate bodies.

59. Provision is made for forfeiture of goods in respect of which an offence has been committed.

59A. The burden of proof of lawful authority for any act, which, if done without such authority is an offence, is placed upon the accused.

59B-59E. Provision is made for the proof in legal proceedings of orders or instruments issued by competent authorities under the regulations, of printing or publication or authorship of printed matter, and of certain formal matters.

60. The powers conferred by the regulations are declared to be in addition to, and not in derogation of, any other powers exercisable for securing the public safety and the defence of the Commonwealth.

61. Provision is made for the giving of notices pursuant to the regulations.

62. Persons claiming to act under any permit granted under the regulations are required to produce such permit when directed.

63. The Naval Board and the Military Board are authorised to appoint competent authorities to carry out the regulations.

63A. Competent authorities and senior officers of police are authorised to extend to any natural-born subject, whose father or whose father's father was a subject of a sovereign or State at war with His Majesty, all or any of the restrictions imposed on aliens or on alien enemies by any order made under the Act.

63B. The provisions of the Aliens Restriction Order 1915, with reference to alien enemies, are declared to apply to any British subject who is also a subject of a sovereign or State which is at war with His Majesty.

63C. Naturalised persons of enemy origin, if their naturalisation is cancelled, are declared to be alien enemies.

64. Persons born in the British dominions, who, by birth, became by the law of any State which is at war with the King subjects of that State, are declared to be subject to the same restrictions with reference to departure from Australia as are imposed on naturalised persons by any order made under the Act.

64A. The payment of moneys to persons interned on the warrant of the Minister is prohibited, except with the permission of the Minister, or of the Secretary or Acting-Secretary of the Department of Defence.

64B. The remitting of money from the Commonwealth without the written permission of the Minister, or of the Secretary or Acting-Secretary of the Department of Defence, to any enemy subject, or to any naturalised British subject who has at any time been the subject of a State at war with the King, is prohibited.

64BA. Persons holding money on behalf of enemy subjects may be required to hand it to the Public Trustee.

64C. Provision is made for the disposal of unclaimed parcels sent to members of forces.

64D. The establishment of a Commonwealth Police Force is authorised.

*The Aliens Restriction Order 1915*, made under the authority of the *War Precautions Act*, contains restrictions as to aliens entering and leaving the Commonwealth, and as to alien enemies resident in the Commonwealth. The principal provisions are as follows:—

Aliens are permitted to enter and leave the Commonwealth only at Darwin, Thursday Island, Brisbane, Newcastle, Sydney, Melbourne, Port Adelaide, Albany, Fremantle, Broome, and Hobart.

The deportation of any alien may be ordered by the Minister.

Masters of ships about to sail from a Commonwealth port may be required to give passages to aliens.

Alien enemies and naturalised subjects of enemy origin are forbidden to leave the Commonwealth without permission.

Aliens entering and leaving the Commonwealth are required to have passports.

Alien enemies may be required to reside in any specified area, and may be forbidden to enter prohibited areas.

Alien enemies are required to register with the police, and to report at such intervals as may be required. They are forbidden to change their places of residence or travel without permission, and are required to report on arrival at a new place of residence.

Naturalised subjects of enemy origin may be required to report themselves to the police, and may be forbidden to change their place of residence or travel unless they first give notice to the police.

Alien enemies and naturalised subjects of enemy origin are forbidden to enter British ships, or wharves, or docks.

Alien enemies are forbidden to be in possession of firearms or other weapons, ammunition, or explosives suitable for use in war.

They are also forbidden, without permission of the police, to be in possession of other firearms, ammunition, or explosives, of inflammable liquids in quantities exceeding three gallons, of signalling apparatus, carrier or homing pigeons, motor vehicles or boats,

ciphers or codes, telephones, photographic apparatus, or military or naval maps, charts, or handbooks.

Naturalised subjects of enemy origin are forbidden, without permission of the police, to be in possession of firearms, ammunition, or explosives.

The circulation among alien enemies of any newspaper published in Australia wholly or mainly in the language of a State at war with His Majesty is prohibited, unless permission has been obtained.

Alien enemies are prohibited from carrying arms.

Alien enemies and naturalised subjects of enemy origin are prohibited from changing their names without permission.

Provision is made for exempting from certain provisions of the Order subjects of enemy powers who belong to races opposed to the rule of such powers.

The competent authorities may direct that any of the provisions of this Order as to alien enemies or naturalised subjects of enemy origin shall, in particular cases, be applicable to other aliens or naturalised subjects.

The competent authorities may also direct that any restrictions imposed on aliens or on alien enemies by the Order shall apply to any naturalised subject of enemy origin.

*The War Precautions (Aliens Registration) Regulations 1916* provide that all aliens entering Australia, and all aliens in Australia over the age of 16 years, shall register with the police. In their applications for registration they are required to state their name in full, nationality, birth-place, date of birth, place of residence, place of business (if any), occupation and date of entry to the Commonwealth. On registration they receive a certificate which states the nationality claimed by them, their date of birth and place of abode, and contains a personal description.

Aliens resident in the Commonwealth are required to inform the police before they change their place of abode, and to report to the police on taking up a new place of abode.

Aliens who wish to change their names are required to give notice to the police.

The keepers of hotels, inns, boarding-houses and lodging-houses are required to keep registers of aliens staying on their premises, containing the name, nationality, date of arrival, previous place of abode, date of departure, destination on departure, and other particulars of aliens.

*The War Precautions (Passports) Regulations 1916* provide that persons over the age of 16 years entering or leaving the Commonwealth must be in possession of passports issued or renewed not more than two years previously, containing a personal description and having a photograph attached. The following classes of persons are exempt from the regulations :—

- (a) Members of the Naval or Military Forces entering or leaving the Commonwealth on duty.
- (b) Crews of ships if signed on in the Commonwealth.
- (c) Crews of ships if entering and leaving the Commonwealth on the same ship.
- (d) Persons going to New Zealand and other adjacent British possessions, subject to certain limitations.
- (e) Holders of certificates of exemption from the dictation test under the Immigration Acts 1901-1912.
- (f) Holders of emergency permits to leave the Commonwealth.
- (g) Persons entering or leaving the Commonwealth in the custody of the law.
- (h) Persons ordered by the Government of the Commonwealth or by any State to leave the Commonwealth.
- (i) Aboriginal natives of Asia or of any island in the East Indies or in the Indian or Pacific Ocean leaving the Commonwealth.

All persons entering the Commonwealth are required to give up their passports before landing. If they subsequently leave, their passports are returned to them on departure.



Other regulations made under the Act are :—

*The War Precautions (Active Service Moratorium) Regulations 1916*, which provide for the postponement until six months after the expiration of the War of payment of principal money (but not interest) secured by mortgages, and payments of purchase money under agreement for the purchase of land, due by members of Forces serving abroad or their female dependents.

These Regulations also contain a provision that chattels used by any female dependent of a soldier to support or assist in supporting herself or any of the family of the soldier, and furniture or wearing apparel belonging to any such soldier or female dependent, not exceeding £50 in value, shall be protected from distress, or seizure under a bill of sale, writ of execution or other process of a Court, or under the provisions of hire purchase agreements.

*The War Precautions (Coal Tar) Regulations 1916*, which provide for the supervision of the distillation of coal tar, and forbid the use of crude tar except with the permission of the Minister.

*The War Precautions (Coaling Battalions) Regulations 1916*, which provide for the raising of Coaling Battalions to coal Transports.

*The War Precautions (Coinage) Regulations 1916*, which forbid the defacing or destroying of gold coins.

*The War Precautions (Companies, Firms and Businesses) Regulations 1916*, which restrict the issue of new capital by Companies, Associations, etc., prohibit the voluntary liquidation of Companies without the consent of the Treasurer, and provide that the consent of the Treasurer must be obtained for the erection of buildings for amusement purposes.

*The War Precautions (Enemy Shareholders) Regulations 1916*, which restrict the holding of shares in companies by persons of enemy descent.

*The War Precautions (Glycerine) Regulations 1916*, which provide for the requisitioning of glycerine.

*The War Precautions (Hides) Regulations 1916*, which give power to regulate the purchase or sale of hides.

*The War Precautions (Land) Regulations 1916*, which restrict the acquisition of land by persons who are not natural-born British subjects.

*The War Precautions (Land Transfer) Regulations 1916*, which restrict the transfer of land in regard to persons of enemy descent.

*The War Precautions (Moratorium) Regulations 1916*, which restrict the right of mortgagees to enforce payment of mortgages.

*The War Precautions (Patents) Regulations 1916*, which provide for the establishment of a Patents Inquiry Board to investigate applications for patents, publication of which might be detrimental to the public safety or the defence of the Commonwealth.

*The War Precautions (Prices) Regulations 1916*, which provide for the regulation of the prices of commodities.

*The War Precautions (Rabbit Skins) Regulations 1916*, which give power to regulate the purchase or sale of rabbit skins.

*The War Precautions (Sheep Skins) Regulations 1916*, which give power to regulate the purchase or sale of sheepskins.

*The War Precautions (Shipping) Regulations 1916*, which restrict the departure of shipping from the Commonwealth without the permission of the Comptroller-General of Customs.

*The War Precautions (Mining) Regulations 1916*, which enact that no contract of agreement for the purchase or acquisition of any mining or metallurgical company or business or of any security issued by any mining or metallurgical company or business for the purpose of raising money, by or on behalf of any person other than a natural born British subject shall be entered into unless consent has been first obtained.

*The War Precautions (Galvanized Iron) Regulations 1917*, prohibiting the use of galvanized iron for certain purposes.

*The War Precautions (Control of Sports) Regulations 1917*, regulating the holding of any race meeting for horses, or any competition or contest in boxing, football, or other athletic game or sport.

*The War Precautions (Leather Industries) Regulations 1917*, establishing local committees having power to determine quantities of hides for tanning and export and to determine the classes, quantity and output of leather.

*The War Precautions (Luxuries Restriction) Regulations 1917*, providing for the appointment of a committee to enquire into and make recommendations in relation to goods or classes of goods, the importation of which should be prohibited or restricted as being articles of luxury, or any article the importation of which is not essential to the general comfort, health or welfare of the community.

*The War Precautions (Meat) Regulations 1917*, requiring persons to furnish returns of all live stock and meat owned or possessed by them.

*The War Precautions (Stocks of Goods) Regulations 1917*, providing that no person, firm or company shall purchase goods (gazetted as prescribed goods) without consent in writing. Returns of stocks to be furnished when required. Persons may also be required to sell such goods.

*The War Precautions (Wharf) Regulations 1917*, which provide that the Commonwealth may enter upon and take possession of the wharf at Port Pirie (South Australia).

*The War Precautions (Winter Butter Pool) Regulations 1918*, for determining quantities, purchase and delivery, and general trade of butter.

*The War Precautions (Flax) Regulations 1918*, providing for the appointment of a committee to collect particulars of stocks, price, cultivation, distribution, sale, quality, etc., of flax.

*The War Precautions (Tallow) Regulations, 1918*, giving the Minister for Defence, or authorised officer, power to requisition on stocks of tallow held by factories or works.

*The War Precautions (Supplementary) Regulations 1916*, which contain provisions:—

- (a) Prohibiting the use in trade of the word "Anzac" and similar words.
- (b) Restricting actions on contracts in cases in which the defendant is supplying munitions.
- (c) Giving power to clubs to suspend or cancel the membership of persons of enemy origin.
- (d) Giving power to requisition goods for munitions.
- (e) Giving power to requisition vessels for the carriage of foodstuffs.
- (f) Restricting proceedings for defamation by persons alleged to be enemy subjects.
- (g) Restricting proceedings arising out of the refusal of any person to employ or work with persons alleged to be enemy subjects.
- (h) Restricting the manufacture or sale of buttons, etc., for patriotic purposes without the consent of a State War Council.
- (i) Prohibiting the use of the word "Repatriation" in connection with any fund without the authority of the trustees appointed by the Australian Soldiers' Repatriation Fund Act 1916, or a State War Council.
- (j) Prohibiting the raising of funds for patriotic purposes in relation to the war without the consent of a State War Council.
- (k) Giving power to refer disputes relating to the Colliery Industry to Arbitration.
- (l) Prohibiting the mortgaging or pledging of goods, etc., advanced, or provided by a State War Council under the powers conferred by the Australian Soldiers' Repatriation Fund Act 1916.
- (m) Prohibiting the transmission of parcels to British prisoners of war abroad.
- (n) Giving power to extend contracts for the supply of goods or services to any Department of the Commonwealth, the supply of which is affected by circumstances arising out of the war.
- (o) Prohibiting unlawful assemblies and the obstruction of officers of Parliament.
- (p) Giving power to close licensed premises in any area notified in the "Gazette."

- (g) Giving power to deregister industrial organisations which cease work and to cancel provisions in industrial agreements relating to preference in employment.
- (r) Providing that persons charged with offences under the War Precautions Act 1914-16 or the Unlawful Associations Act 1915-17 may not be released on bail except by special magistrate.
- (s) Giving power to the Interstate Commissioner to make investigation relating to prices and rent.
- (t) Giving power to inspect bank accounts of enemy subjects and naturalised persons of enemy origin.
- (u) Prohibiting the making of agreements the object of which is to fix or determine the minimum price for supplies for the Commonwealth.
- (v) Exempting members of "Wool Committees" and others from serving as jurors.
- (w) Providing for the investment of trust funds in war loans and making other provisions in regard to war loans.
- (x) Providing for the enforcement of recognizances entered into under the War Precautions Regulations.

*The War Precautions (Tin Plates) Regulations 1916*, which give power to regulate the use of tin plates.

*The War Precautions (Wool) Regulations 1916*, which give power to regulate the purchase or sale of wool.

### § 7. Persons of Enemy Birthplace.

The following table shews the estimated number of males of enemy birthplace (natives of Germany, Austria-Hungary, Turkey, and Bulgaria, whether naturalised or otherwise, but exclusive of persons of British parentage), in each State at the 31st July, 1915, and the estimated number naturalised. While the States and military districts are not quite conterminous, they approximate sufficiently to admit of the comparison :—

#### MALES OF ENEMY BIRTHPLACE IN THE COMMONWEALTH AT 31st JULY, 1915.

State and Military District.				Male Enemy Subjects.*	Number Naturalised.*	Number not Naturalised.*
Queensland	1st Military District	...	...	8,080	6,640	1,440
New South Wales	2nd " "	...	...	6,460	4,330	2,130
Victoria	3rd " "	...	...	4,920	3,300	1,620
South Australia	4th " "	...	...	3,270	2,630	640
Western Australia	5th " "	...	...	3,190	1,280	1,910
Tasmania	6th " "	...	...	380	320	60
Total	...	...	...	26,300	18,500	7,800

\* These figures are based on Census returns, and can only be considered as a rough approximation.

The number of females of enemy birthplace in the Commonwealth at 31st July, 1915, is estimated at about 12,000.

### § 8. Repatriation.

1. **General.**—In common with all the warring countries of the world, Australia has to face the problem of the returned soldier—to find employment for the fit, to re-establish the disabled, and to provide for the dependents of those who have died or of those who are no longer able to support themselves.

During the early stages of the war this work was carried out mainly by voluntary effort, assisted by Government funds, and supplemented by private contributions. Disconnected and divergent schemes were extemporised to meet the pressing needs of

soldiers and their families, with the result that there was overlapping in some directions and insufficiency in others. The Commonwealth Parliament therefore decided that Repatriation should become a national undertaking, and that a comprehensive scheme should be designed to meet the various claims in connection therewith. On 8th April, 1918, the Department of Repatriation, charged with this responsibility, was established, the first Minister being Senator the Hon. E. D. Millen.

**2. Organisation of Department.**—The organisation of the Department provides for a Central Administrative Commission of seven members, termed the Repatriation Commission, of which the Minister is chairman, and upon which returned soldiers are represented. The Commission acts in an honorary capacity. Its duties are to prescribe by regulation the nature and extent of the assistance that may be granted, and to hear appeals from decisions of the State Boards. The permanent head of the Department is the Comptroller. Repatriation headquarters are in Melbourne. District branches have been established in the capital city of each State, and associated with these branches are State Boards, comprising seven members, and providing for the representation of returned soldiers. Members of these Boards act also in an honorary capacity. The permanent official at the head of each State organisation is termed Deputy-Comptroller. A network of local committees is connected with the district branches. The local committees are voluntary organisations possessing dual functions. They act as sub-agents under the control and direction of the Department so far as the disbursement of assistance specifically provided by the Department is concerned; and they are vested with discretionary powers in regard to the disbursement of supplementary assistance, organised and raised locally. Local Committees work within clearly defined territorial boundaries. Under this scheme every square mile of the whole continent of Australia is brought directly under the operation of the departmental policy.

**3. Policy of the Department.**—The policy of the Department is based upon three main principles:—

- (a) To secure the re-establishment of returned soldiers in the industrial life of the community to the fullest extent that circumstances permit;
- (b) To sustain these soldiers until an opportunity for such re-establishment is assured; and
- (c) To provide for the care of the dependents of soldiers who have died on active service, as well as the dependents of soldiers who, on account of injuries sustained, are unable to provide for those formerly dependent upon them.

To give effect to these principles the Department undertakes:—

- (1) To provide suitable employment for those who are able to follow their previous occupation or one similar to it, and to pay sustenance until such opportunities are presented;
- (2) To restore to the fullest degree of efficiency possible, by means of vocational training, those who on account of war service are unable to follow their pre-war occupations, and during the period of such training to assure trainees adequate sustenance;
- (3) To maintain totally and permanently incapacitated soldiers and their dependents, and soldiers' widows with children.

An important feature of the scheme is the means taken to get into touch with soldiers returning to Australia, and to ascertain as far as possible, prior to their discharge, what assistance they will require, and so make preparations in advance for dealing with applications. Information regarding the activities of the Department is given to the men on board transports coming to Australia, and at the same time information is obtained from them, or concerning them, regarding their pre-war occupations, their physical condition and other matters essential to expeditious treatment.

4. **Activities of the Department.**—The activities of the Department are classified under three sections—employment, vocational training, and assistance. Under assistance, a wide variety of benefits, including the provision of surgical aids, medical treatment, establishment in small businesses, furniture loans and grants, relief from onerous mortgages, educational grants, and equipment with tools of trade are provided.

5. **Sustenance Rates.**—The sustenance rate that may be granted to applicants awaiting fulfilment by the Department of certain specified obligations is :—

- (a) To a soldier without dependents a weekly income inclusive of pension of £2 2s.;
- (b) To a soldier with a wife a weekly income inclusive of their combined pensions of £2 12s.

An additional allowance of 3s. 6d. per week is made for each child up to four, the maximum sum payable being £3 6s. per week.

Those who are eligible for this benefit are applicants awaiting employment; approved applicants waiting to take up land; blind soldiers undergoing training; students receiving training in commercial or professional occupations; trainees in technical schools; convalescents; and soldiers receiving medical treatment.

Living allowances payable to totally and permanently incapacitated soldiers and to soldiers' widows with children are on the following scale :—

Soldier and wife (inclusive of pensions)	...	s.	d.	
	...	60	0	per week
Soldier, wife, and 1 child (inclusive of pensions)	...	63	6	"
" " 2 children " "	...	67	0	"
" " 3 " " "	...	70	6	"
" " 4 " " "	...	74	0	"
" " 5 or more " "	...	77	6	"

*Widows with Children—*

Widow with 1 child (inclusive of pensions)	...	51	0	"
" 2 children " "	...	54	6	"
" 3 " " "	...	58	0	"
" 4 " " "	...	61	6	"
" 5 or more " "	...	65	0	"

6. **Summary of Five Months' Work of Department.**—The following is a summary of the work done by the Department during the first five months of its existence :—

*Employment—*

Number of applications	...	...	...	17,298
Number of positions filled	...	...	...	14,089
Lapsed applications	...	...	...	1,133
Waiting at 31/8/18	...	...	...	2,076

*Vocational Training—*Vocational training is designed for—

- (a) Apprentices whose apprenticeship has been interrupted by war service.
- (b) Those who, owing to war service, are unable to follow their pre-war occupations.
- (c) Those who, while able to follow their pre-war occupations, are unable, owing to injuries, to command immediately the full wage of the trade or calling.

Classes representing 80 trades and callings have been established :—

Number completed training	...	...	...	545
" in training	...	...	...	1,767
Applications pending	...	...	...	350

*Assistance—*

Applications received	...	...	...	37,371
" approved	...	...	...	29,492
" refused	...	...	...	2,539
" withdrawn	...	...	...	995
" pending	...	...	...	1,589

7. Assistance Granted.—The table hereunder shews the sums granted by way of assistance in each State during the period from 8th April to 31st August, 1918:—

**DEPARTMENT OF REPATRIATION.—ASSISTANCE GRANTED FROM 8th APRIL to 31st AUGUST, 1918.**

	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Total.
Sustenance—	£	£	£	£	£	£	£
Awaiting employment ...	21,578	38,854	13,870	11,578	8,127	852	94,859
Under treatment ...	3,225	3,017	182	698	357	258	7,737
Undergoing training ...	1,620	14,114	171	628	334	159	17,026
Incapacitated soldiers ...	511	21	13	1,825	115	...	2,485
Children's education ...	2	...	...	...	...	...	2
Other cases ...	...	...	222	511	9	205	947
Sustenance total ...	26,936	56,006	14,458	15,240	8,942	1,474	123,056
Surgical aids ...	1,704	949	145	19	43	17	2,877
Vocational training ...	492	3,795	133	118	714	26	5,278
Furniture—							
Widows ...	833	2,336	335	1,809	552	198	6,063
Totally incapacitated soldiers ...	781	8,215	1,574	109	55	...	10,734
Other cases ...	4,620	...	1,140	4,218	559	417	10,954
Tools of trade ...	4,284	3,158	2,139	222	554	64	10,421
Small businesses ...	6,161	7,907	3,827	493	2,039	2	20,429
Plant ...	1,260	3,344	2,988	528	1,646	243	10,009
Live stock ...	...	978	1,142	43	...	20	2,183
Homes—							
Conversion of mortgages ...	667	1,521	719	...	70	...	2,977
Rental allowances* ...	1,508	3,680	250	38	136	38	5,650
Other cases† ...	793	...	6,060	15,961	130	...	22,944
Free passages ...	576	623	133	376	183	17	1,908
Transportation expenses ...	624	1,280	1,037	175	260	135	3,511
Educational grants ...	...	34	...	...	32	...	66
Medical treatment ...	45	43	103	355	...	15	561
Funeral expenses ...	378	295	78	170	70	...	991
Miscellaneous ...	26	2,347	8	28	187	51	2,647
Expenses of allotment ...	81	183	25	5	34	12	340
	51,769	96,694	36,294	39,907	16,206	2,729	243,599

\* The scale of living allowances, although approved by the Commission, had not come into operation on 31st August. Up to that date rental allowances were made to widows and to totally and permanently incapacitated soldiers. Living allowances are in lieu thereof.

The scheme also provides for the creation of "reserve employments" in national reproductive works such as forestry, and for the establishment of national workshops in which industries will be carried on for the permanent benefit of the severely maimed.

† These cases were approved by State War Councils prior to establishment of the Department of Repatriation.

## SECTION XXIX.

## PAPUA (BRITISH NEW GUINEA).

## § 1. New Guinea.

1. **Geographical Situation of New Guinea.**—New Guinea, frequently described as the largest island in the world, lies to the north of Australia, between  $0^{\circ} 25'$  and  $10^{\circ} 40'$  S. latitudes, and between  $130^{\circ} 50'$  and  $150^{\circ} 35'$  E. longitudes. Its estimated area exceeds 300,000 square miles, the greatest length being 1490 miles and the greatest breadth 430 miles.

2. **Discovery.**—The island was probably sighted by Abreus in A.D. 1511. The first visit by Europeans was apparently either that by the Portuguese Don Jorge de Meneses on his way from Goa to Ternate in 1526, or that by the Spaniard Alvaro de Saavedra in 1528. In 1606 Torres, having parted company with De Quiros at the New Hebrides, sailed, on his way to the Philippines, through the strait which separates the island from Australia, and which now bears his name.

3. **Colonisation.**—Little progress was made for many years in exploration and settlement. First the Portuguese, and afterwards the Dutch, who to a great extent replaced them as the principal European traders in the East, seem to have jealously excluded other traders and adventurers, and to have kept the knowledge of their discoveries to themselves. The coasts were visited by Roda, Schouten, Lemaire, Tasman, Dampier, Torres, Bougainville, and Cook; but the difficulties of navigation, the savagery of the islanders, and the tempting fields for enterprise in the more temperate regions further south, diverted the energy of traders and voyagers. Forrest describes a voyage by himself in 1774. In 1793, New Guinea was annexed by two commanders in the East India Company's service. Since that date the Dutch have made extensive surveys of the western portion, and the British and Germans have occupied and colonised the eastern. In September, 1914, German New Guinea was seized and occupied by Great Britain by means of a force raised and despatched by the Australian Government.

4. **Partition.**—The three colonising powers agreed to the partition of New Guinea, each having suzerainty over islands adjoining its own territory. The whole of the portion west of the 141st degree of latitude, comprising about 150,000 square miles, or nearly half the island, belongs to the Dutch. The eastern half was divided in almost equal portions between Great Britain and Germany, the area possessed by each (with adjacent islands) being about 90,000 square miles. An Anglo-German boundary commission, appointed for the purpose of defining the boundary between the territories of the two nations, started operations on 26th December, 1908, and completed the field-work on 27th October, 1909. The total length of boundary delimited was  $66\frac{1}{2}$  miles. The work was both important and difficult. For a considerable portion of the survey, the country was exceedingly rough and mountainous, and the natives hostile. In one instance, the line was carried over a range at an elevation of 11,110 feet. The Dutch colony forms part of the residency of Ternate in the Moluccas, and has not been extensively developed. The German protectorate, where considerable commercial development had taken place, included the northern part of the eastern half of the mainland, known as Kaiser Wilhelm Land, and the large islands of the Bismarck Archipelago and the Solomon Group, as well as nearly 200 smaller islands. The south-eastern portion of New Guinea, nearest Australia, is a dependency of the Commonwealth of Australia. The German Pacific protectorate was terminated in 1914.

## § 2. The Australian Dependency of Papua.

**1. Australian Dependency of Papua.**—Surveys of the east coast of New Guinea by Stanley, Yule, Blackwood, Moresby, and others, brought home to Queensland, and to Australia generally, the danger to her commerce which would result from foreign possession of the islands and coasts opposite to Cape York, and from the holding by a hostile power of the entrance to the splendid waterway inside the Barrier Reef. The mainland opposite the shores of Queensland east of the 141st meridian was therefore annexed by that colony in 1883, but the action was disallowed by the British Government. In 1884, however, a British protectorate was authoritatively proclaimed by Commodore Erskine over the region lying east of the 141st meridian as far as East Cape, with the adjacent islands as far as Kosman Island. In the year following, an agreement with Germany fixed the boundaries between the possessions of the two countries, and to Great Britain was assigned the portion now known as Papua, lying between the extreme limits of 5° and 12° S., and 141° and 155° E. The British protectorate was subsidised by Queensland, New South Wales, and Victoria, and lasted until 30th September, 1888, when it was proclaimed a possession of the Empire. Its constitution was then that of a Crown colony, in association, however, with Queensland. Administration was in the hands of a Lieutenant-Governor, aided by an Executive and a Legislative Council, and advised by a Native Regulation Board. Port Moresby, on the south coast, was made the headquarters of the official establishment; a supreme court was established there, and magisterial courts in the districts; and an armed native constabulary force (numbering 343 on the 30th June, 1917), under a European officer, was instituted for the maintenance of order. There were also, on the same date, 741 native village constables employed by the Crown.

**2. Annexation by Commonwealth.**—The territory was placed under the authority of the Commonwealth on 1st September, 1906, by proclamation issued in pursuance of Letters Patent of the 18th March, 1902, and was accepted by the Commonwealth by the Papua Act 1905, which came into force by virtue of the proclamation aforesaid. The transfer was made under the authority of section 122 of the Constitution (see p. 33 hereinbefore). The territory is now under the administration of the Commonwealth, but not included within it, and is divided into eleven magisterial districts.

**3. Physical Characteristics.**—Papua lies wholly within the tropics. The northernmost point touches 5° S. latitude; its southernmost portion, comprising Sudest and Rossel Islands, lies between 11° S. and 12° S. latitude. It is separated from Australia by Torres Strait. The length of Papua from east to west is upwards of 800 miles; towards either end the breadth from north to south is about 200 miles, but about the centre it is considerably narrower. The territory comprises also the islands of the Trobriand, Woodlark, D'Entrecasteaux, and Louisiade groups. The length of coast-line is computed at 3664 miles—1728 on the mainland, and 1936 on the islands. The total area is about 90,540 square miles, of which 87,786 are on the mainland, and 2754 on the islands. From the eastern end of the territory rises a chain of mountains, which forms a great central ridge and attains its greatest altitude, as it extends westwards, in the Owen Stanley Range, the highest points of which are Mount Victoria (13,200 feet), Mount Scratchley, the Wharton Range, and Mount Albert Edward. The western end of the possession is for nearly 300 miles generally low and swampy for some distance along the coast. The whole territory is well watered. The great mountains and a great portion of the lower country are covered with forest. The islands are mountainous, and, with the exception of the low coral islands of the Trobriand Group, part of Murua, and a few others of small dimensions, principally of volcanic formation. The highest is Goodenough Island, 8000 feet. The largest rivers of the mainland flow into the Gulf of Papua. The Fly River, with its tributaries, drains an extensive area of the territory of the Netherlands, as well as the British. Its length in British territory is about 620 miles, and it is navigable by a steam launch for over 500 miles. Other important rivers are the Turama and the Purari. There are many excellent harbours.



### § 3. Population.

The total white population of Papua on 30th June, 1917, was 1036, made up of 698 adult males and 228 adult females (adults being persons over 16 years of age), and 59 male and 5 female children. The following table gives the population of Papua for the last five years:—

#### WHITE POPULATION OF PAPUA, 1913-1917.

YEAR ENDED 30TH JUNE.

1913.	1914.	1915.	1916.	1917.
1,219	1,186	1,037	992	1,036

The chief occupations of adult male Europeans were:—Planters (including managers and assistants), 139; miners, 116; Government officials and employees, 119. The number of missionaries is stated as 70.

It is not possible to make a reliable estimate of the number of natives, owing to the fact that much of the interior country is unexplored. It is generally assumed to be somewhere between 400,000 and 500,000. These speak many languages and dialects. The coloured population, other than Papuans, numbered on 30th June, 1917, 328, of whom 217 were mission teachers principally from Samoa, Fiji, Solomon Islands, and other South Sea Islands. On the same date, half-castes, including Papuan half-castes, totalled 338. An Immigration Restriction Ordinance prohibits the immigration into the territory of persons who fail to pass the dictation test, or who are persons of bad character, or likely to become a charge upon the public. Exemptions may, however, be granted by the Lieutenant-Governor to persons of special skill whom it is desired to employ as overseers or foremen.

### § 4. Native Labour.

The rights of both employer and labourer are conserved by the Native Labour Ordinances. Service on the part of the native is voluntary, and he must be justly treated, and properly housed and fed. Employers may recruit personally, or obtain their natives through a licensed recruiter. Contracts of service must be in writing, entered into before a magistrate or other qualified officer, and the natives must be returned to their homes on completion of engagement. The labour question is complicated by the communistic system which prevails in the villages. Native custom demands that the friends or fellow-clansmen of the returned labourer receive a share in whatever he gets. The result is that the stimulus of individual interest is largely absent. During the period of service the recruiter or employer is personally responsible for the native's welfare. Refusal to work after engagement, or desertion from service, renders the labourer liable to imprisonment. On the other hand, a magistrate may terminate an engagement where unjust or harsh treatment by the employer is proved. The term of indenture must never exceed three years, and in the case of miners and carriers eighteen months is the limit, but re-engagements may be made. The magistrate must satisfy himself that the remuneration is fair, that the native is willing to undertake the service, and that there is no probability of unfair treatment or detention. Wages must be paid in the presence of an officer. A medicine chest, stocked with necessary drugs and first aid instruments, must be kept by all employers.

Just treatment, good food, and satisfactory remuneration for his labour have made the Papuan savage an excellent servant. With considerable natural aptitude and intelligence, he is able to understand readily what is required by his employer; consequently native labour is very largely engaged by the Administration for the construction of roads and public works, and by the private employer for the clearing and upkeep of plantations. In some districts, however, the natives manifest a marked unwillingness to work. Actual ill-treatment of native employees may be said to be non-existent.

The number engaged under contract of service during the year ended 30th June, 1917, was 7892. In addition, there were 2520 natives employed who were not under contract of service, and 1724 employed as armed constabulary, village constables, boat crews, on public works, plantations, etc., making a total employed of 12,136 for the year, as against 9582 in the preceding year.

## § 5. Production.

1. **Papuan Products.**—The products of the territory are obtained from its agricultural, forestal, fishing, mining, and manufacturing industries. There is a Papuan Court at the Imperial Institute, London, where, beside maps, handbooks and reports, a representative collection of products is shewn, additions being made to the exhibits from time to time. Displays of Papuan produce are also made at exhibitions held in the Commonwealth. The industries of Papua are not numerous, but they are becoming more diversified. In many cases, some years must elapse before the raw material is available or commerce.

2. **Agriculture.**—(i.) *Soil and Rainfall.* The physical features of Papua are favourable to agriculture. Rich soils at varying elevations, and heavy and evenly-distributed rainfall, have ensured success in cultivating almost every tropical product of value. The territory comprises immense areas of rich alluvial and volcanic soils along the coast, and equally fertile land at elevations up to 6000 feet. Splendid rainfalls are recorded, except over a belt of country which runs back from the coast to the hills, and which has its dry season from May to November. This "dry" area is admirably suited for the production of tobacco, fibres, cotton, etc. There are 22 meteorological stations throughout the territory. An economic museum and agricultural library have been established. By anticipating and removing many of the pioneering difficulties, the Government has made the task of the colonist an easy one. The feature of recent years has been the steady investment of capital in the development of large areas previously acquired. One of the principal difficulties of planters is the heavy growth of weeds, and the Government has undertaken experiments with the planting of grasses to take the place of weeds, and so keep down rank vegetation.

(ii.) *Plantations.* On 30th June, 1917, there were 254 plantations. Agricultural settlement has been mostly in the Central and Eastern Divisions, though plantations are rapidly spreading in other districts. The total area planted was 47,819 acres, or an average of 186 acres for each plantation. The principal plantation industries entered upon up to the present are coconuts, rubber, sisal hemp, and tobacco. Secondary agricultural industries are the cultivation of bowstring hemp, coffee, vanilla, kapok, cocoa, tapioca, cinnamon, tea, and maize. The natives are compelled by an ordinance to plant coconuts for food supply, and there are now over 50 village plantations in existence. In addition to the coconuts in these plantations many more are planted over small and widely scattered areas by the older natives in accordance with custom. The following table shews the areas under the different cultures on 30th June, 1917:—

							Acres.
Coconuts	...	...	...	...	...	...	34,686
Rubber	...	...	...	...	...	...	7,760
Hemp	...	...	...	...	...	...	3,942
Cotton	...	...	...	...	...	...	5
Tobacco	...	...	...	...	...	...	232
Maize	...	...	...	...	...	...	68
Other cultures (including fruit trees)	...	...	...	...	...	...	626
Total	...	...	...	...	...	...	47,319

It is estimated that over £1,000,000 has been expended in plantations, and, with the exception of two large British companies, practically the whole of the capital has been subscribed in Australia and locally.

(iii.) *Government Plantations and Experimental Stations.* There are five Government plantations with a total area under cultivation of 1634 acres. The table hereunder shews their distribution. The expenditure on these from loan funds to the 30th June, 1917, was £25,366.

#### PAPUAN GOVERNMENT PLANTATIONS AND EXPERIMENTAL STATIONS.

Locality.	Nature of Cultivation.						Area.
							Acres.
Orangerie Bay	...	...	...	Coconuts	...	...	823
Kemp-Welch River	...	...	...	Rubber, coconuts, etc.	...	...	420
Milne Bay	...	...	...	Coconuts, etc.	...	...	59
Hombron Bluff	...	...	...	Rubber, etc.	...	...	160
Nari Island	...	...	...	Coconuts	...	...	235

Sylvicultural nurseries have been established in connection with the plantations with the object of supplying settlers with seeds and plants, which have been imported from the East and West Indies, Central America, tropical Australia, Ceylon, the Malay States, and the Solomon Islands. At the experimental stations, the suitability of the soil and climate for different products is tested, and correct methods of cultivation demonstrated. Large quantities of plants and seeds have been distributed to planters. A Government orchard, for supplying fresh fruit and vegetables, has been established at one of the stations, and yields considerable quantities of European fruit-foods.

(iv.) *Indigenous Products.* There are many indigenous plants of great economic value. These comprise sandalwood and other timber trees, sugar-cane, cotton plants, rubber—both vine, nutmegs, ginger, bamboos, palms, bananas, bread-fruit, edible nuts, sago-palms, fruits, and vegetables.

3. **Live Stock.**—On 30th June, 1917, the live stock in the territory consisted of 362 horses, 6 donkeys, 1109 head of cattle, 91 mules, 91 sheep, 555 goats, 347 pigs, and 5872 fowls. A Government stud farm has been established for the breeding of horses, and the stock at the end of June, 1917, numbered 69. The introduction of rabbits, foxes, hares, and monkeys is prohibited.

4. **Forest Products.**—There is a large diversity of useful timbers in Papua. Of 120 varieties that have been catalogued, 16 are adapted to resisting heavy strains, and are suitable for girders, railway waggons, etc.; 10 for railway carriage and coach building; 15 for joinery, lining, flooring, etc.; 14 for butter boxes; 5 for boat building; 4 for piles, and 15 for cabinet work. Sandalwood is indigenous. It is largely used for cabinet work,

and santal oil is distilled from its roots. Ebony is also produced for export. Rubber is a promising industry. There are considerable areas of native rubber (*Ficus Rigo*); but the planters generally prefer the imported Para rubber. Guttapercha is obtained from a species of *palaquium*, which grows on the hills. Drugs, dyewoods, and spices are also obtained from indigenous plants. Saw mills have been established, but the output has not been sufficient to supply the local demand for building and other timber, and large quantities of sawn timber have been imported from Australia. Contracts have been made by residents to ship timber to Great Britain. The timber licenses in force during 1917 covered 51,215 acres.

5. **Fisheries.**—Pearl-shell fishing occupies an important place in the industries of Papua. A considerable number of luggers is licensed, but the returns are mostly credited to Queensland, whose boundary approaches to within a few miles of the Papuan coast. The species of tortoise which supplies the commercial tortoise-shell is also a native of the territory. Bêche-de-mer and trochus are found along the shores and reefs. There is a dugong fishery on the coast of the Western Division. The value of fisheries exports in 1916-17 was £13,274, of which bêche-de-mer accounted for £2521, pearls £2400, trochus shell £8050, and shell, other, £303.

6. **Mining.**—(i.) *Variety of Minerals.* Minerals have been discovered in many places, and over an extremely wide range. Those discovered so far are—gold, copper, tin, lead, zinc, cinnabar, iron, osmiridium, gypsum, manganese, sulphur, graphite, chromite, brown coal, lignite, and petroleum. With regard to the last-mentioned mineral it may be noted that petroleum of good quality has been secured at Vailala, and a small quantity was raised in 1915. Boring operations are still in progress. The area of petroliferous country has been estimated at 300 square miles, but it is stated that the search for oil has been hampered by the lack of knowledge regarding the deeper geological strata. Other difficulties to be surmounted arise out of the isolation of the field and the climatic conditions in its vicinity. Since the 16th January, 1913, seven bores have been put down, of which No. 7, the deepest, reached 1800 feet. About 2000 gallons of crude oil have so far been raised. Expenditure on the field up to June, 1918, amounted to £84,000, of which drilling plants absorbed £12,000. Of precious stones, only the topaz and beryl have been obtained. Large beds of apparently good coal also exist. A geologist was added to the Government service at the beginning of the year 1911.

(ii.) *Gold.* In 1888 the first gold was discovered. The search has now spread over every division, and finds have been recorded wherever the explorers have gone. Prospecting parties are subsidised by the Government. There are 107 white miners and 1064 indentured labourers; the majority of the whites are working on the Murua, Louisiade and Lakekamu fields. The quantity, in fine ounces, and value of the gold yield for five years are given below:—

GOLD YIELD, PAPUA, 1912-13 to 1916-17.

1912-13.		1913-14.		1914-15.		1915-16.		1916-17.	
Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
fine ozs.	£	fine ozs.	£	fine ozs.	£	fine ozs.	£	fine ozs.	£
15,094	64,115	11,797	50,110	12,058	51,221	10,181	43,248	8,943	37,988

Most of the rivers, with the exception of those flowing into the Gulf of Papua, have been declared open to gold-dredging, and good yields have been obtained from many of the rivers thus dredged. The total value of gold won to 30th June, 1917, was £1,474,237.

(iii.) *Copper.* Rich and extensive deposits of cupriferous ore have been located, and prospecting is still in progress. Owing to heavy transport charges, only the richest ore is, at present, shipped. The principal copper mining areas are the Astrolabe and Woodlark Island. During 1916-17, the production of ore amounted to 1323 tons, valued at £14,050, the bulk of which was raised at the Dubuna mine in the Astrolabe field. The total amount shipped to the end of June, 1917, was 6766 tons, valued at £99,780.

(iv.) *Other Minerals.* Some good samples of galena (sulphide of lead) have been obtained. Small quantities of cinnabar (sulphide of mercury), graphite (or plumbago), osmiridium (or iridosmine), zinc-blende, native sulphur and other minerals are also found.

A mineral laboratory and museum has been fitted up, and is available to prospectors and others interested.

## § 6. Statistical Summary.

1. **Revenue and Expenditure.**—The revenue and expenditure for 1916-17, under principal heads, are given below; also a summary covering a period of five years. In addition to the revenue collected during the year, amounting to £63,568, a sum of £30,000 was granted by the Commonwealth Government.

### REVENUE AND EXPENDITURE OF PAPUA, 1916-17.

REVENUE.				EXPENDITURE.			
Customs and Excise...	...	£45,353		Lieutenant-Governor and Civil list	£3,349		
Post Office	...	2,147		Government Secretary	...	34,432	
Native labour fees	...	2,424		Treasury	...	11,547	
Hospital fees	...	893		Lands and Agriculture	...	7,772	
Mining receipts	...	1,419		Public Works	...	12,916	
Land leases	...	1,402		Medical	...	8,380	
Harbour dues	...	1,807		Department of Native Affairs	...	1,575	
Miscellaneous receipts	...	8,123		Central Court	...	1,514	
				Legislative Council	...	433	
				Government Vessel	...	1,822	
Total	...	£63,568		Total	...	£83,740	

### REVENUE AND EXPENDITURE OF PAPUA, 1912-13 to 1916-17.

Item.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£
Revenue	52,335	54,704	51,960	49,311	63,568
Expenditure	89,170	81,095	82,535	77,913	83,740

2. **Imports and Exports.**—The value of imports and exports for the last five years is shewn in the table below:—

### VALUE OF IMPORTS AND EXPORTS OF PAPUA, 1912-13 to 1916-17.

Particulars.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£
Imports	218,323	212,134	202,055	223,040	271,640
Exports	128,016	123,140	94,354	125,428	156,535
Total trade	346,339	335,274	296,409	348,468	428,175

As in all new countries, the imports consist chiefly of articles necessary for the primal needs of the community. Thus in 1916-17 the imports of agricultural products and groceries came to £84,000; drapery, £37,000; hardware, ironmongery and machinery,

£49,000; tobacco, £15,000; kerosene and other oils, paints, etc., £12,000. The chief items of export during the last five years are as follows:—

### EXPORTS OF PAPUA, 1912-13 to 1916-17.

Article.					1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
					£	£	£	£	£
Gold	...	...	...	...	62,332	47,233	50,889	43,249	37,988
Copra	...	...	...	...	16,912	26,063	12,693	19,051	40,882
Rubber	...	...	...	...	517	1,536	1,501	14,846	26,682
Hemp	...	...	...	...	3,039	3,633	1,269	11,999	11,463
Copper Ore	...	...	...	...	18,997	19,733	5,607	9,971	14,050
Pearl Shell and Trochus Shell...	...	...	...	...	8,512	11,212	4,292	6,770	8,050
Pearls	...	...	...	...	9,284	4,602	6,113	1,000	2,400
Bêche-de-Mer	...	...	...	...	1,871	2,857	3,853	3,229	2,521

The development of the plantations is reflected above in the increased exports of copra, rubber and hemp, and as greater areas come into bearing, these figures will, of course, increase. Up to the end of 1914-15 the copra exports were almost wholly native products.

**3. Postal and Shipping.**—Considerable development has been shewn in means of communication—the postal returns, and the tonnage of vessels entered and cleared at ports, having largely increased. Particulars regarding postal matter are given hereunder:

### POSTAL STATISTICS OF PAPUA, 1912-13 to 1916-17.

Year.	Letters.		Packets.		Newspapers.		Parcels.	
	Received.	Des-patched.	Received.	Des-patched.	Received.	Des-patched.	Received.	Des-patched.
1912-13	136,585	111,574	23,088	5,338	112,931	37,030	2,935	1,049
1913-14	158,760	124,353	24,458	8,347	130,620	35,011	3,305	1,367
1914-15	144,193	98,158	23,878	7,215	111,011	37,393	3,220	1,004
1915-16	157,218	112,572	30,054	2,460	100,464	13,302	2,904	876
1916-17	127,296	106,836	14,724	4,476	98,016	33,900	3,108	1,044

The value of money orders issued in 1912-13 was £7166; of those paid, £793. In 1916-17, the respective values were £6207 and £1146.

The following table shews the number, tonnage, and nationality of vessels entered and cleared at ports during the years 1912-13 to 1916-17:—

### SHIPPING.—FOREIGN-GOING VESSELS ENTERED AND CLEARED AT PORTS OF PAPUA, 1912-13 to 1916-17.

Nationality.	Vessels.									
	Number.					Tonnage.				
	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
British...	1,721	863	610	166	121	182,676	159,776	262,897	96,753	72,414
Foreign	56	66	33	48	50	123,802	198,730	99,729	151,134	158,594
Total...	1,777	929	643	214	171	306,478	358,506	362,626	247,887	231,008

The preponderance in number of British vessels in 1912-13 was caused by the inclusion in the returns, for that year only, of small fishing and recruiting vessels. Throughout, the figures are exclusive of ships of war and Government vessels.

## § 7. Land Tenure.

**1. Method of Obtaining Land.**—(i.) *The Land Laws.* The broad principles upon which the land laws of Papua are based are:—(a) No land can be alienated in fee simple; (b) the rental of the land leased is assessed on the unimproved value of the land, and is subject to reassessment at fixed periods.

A detailed account of the method of obtaining land was given in Official Year Book No. 6, pp. 1088-4.

(ii.) *The Leasehold System.*—With a view of attracting pioneer settlers, an ordinance was passed in 1906 under which leases were granted on very liberal terms. No rent was payable for the first ten years, the heavy expense of survey was borne by the Government, and no charge was made for the preparation and registration of the leases; that is to say, no payments whatever had to be made to the Government for 10 years. Under this system, the area under lease increased in four years from 2089 acres to 363,425 acres; about 140 plantations were started, and nearly 1000 acres planted during that period.

After allowing free survey for three years, it was decided that all future applicants for agricultural leases exceeding in area 100 acres should be required to pay the cost of survey. It was also found desirable to check a tendency amongst a proportion of land applicants to obtain areas so great that the improvement conditions could not be carried out. It was therefore enacted that no leases should be granted after 1st June, 1910, exceeding 5000 acres in extent, and that rent at the rate of 3d. per acre must be paid from the commencement on all leases exceeding 1000 acres in area. As a result of these enactments, several leases have been forfeited. On the other hand, a stricter enforcement of improvement conditions has resulted in a substantial raising of the standard.

**2. Land Tenures.**—On 30th June, 1917, the lands of the territory were held as follows:—

	Acres.			
Area of land held by the natives	...	...	...	57,064,636
Area of Crown land ...	...	...	...	630,403
Area of freehold land	...	...	...	23,085
Area of leasehold land	...	...	...	227,476
Area of territory	...	...	...	57,945,600

Private sales of land in the territory have now practically ceased. The Government buys from the natives, and then leases to planters, who are forbidden to have direct dealings in land with Papuans. The position as regards leasehold tenures may be seen from the following table:—

### AREA HELD UNDER LEASE IN PAPUA, 1912-13 to 1916-17.

Year ended 30th June.	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.
Land held under lease ... acres (as recorded).	290,936	230,879	235,072	228,013	227,476

Of the total area of 227,476 acres shewn above, nearly 200,000 acres were agricultural leases, and about 27,000 acres were held under pastoral lease.

In 1916-17, the area of leases granted was 14,746 acres; that of leases surrendered, revoked, and forfeited was 15,191 acres. The area of land acquired by the Crown from the natives was 34,427 acres.

The total area surveyed in the Territory is 22,523 acres of freehold, and 258,120 acres of leasehold.

## § 8. Progress of the Territory.

1. **Statistical View of Ten Years' Progress.**—As already stated (§ 2, *supra*) the territory was placed under Commonwealth control on 1st September, 1906. The following table indicates the progress that has been made since that date :—

## STATISTICAL SUMMARY, PAPUA, 1907-1917.

Items.	Year ended 30th June.	
	1907.	1917.
White population ... ..	690	1,036
Native labourers employed (exclusive of Crown servants) ...	2,000	10,412
Number of white civil servants ... ..	65	119
Armed constabulary ... ..	185	343
Village constables ... ..	401	741
Territorial revenue ... ..	£ 21,813	63,568
Territorial expenditure ... ..	£ 45,335	83,740
Value of imports ... ..	£ 87,776	271,640
Value of exports ... ..	£ 63,756	156,535
Area under lease ... .. acres	70,512	227,476
Tonnage of ocean-going vessels entered and cleared at ports ...	159,177	231,008
Area of plantations ... .. acres	1,467	47,319
Meteorological stations established ... ..	3	22
Gold yield ... .. fine ounces	12,439	8,943
Copper ore shipped ... .. tons	137	1,322
Live stock in territory—		
Horses ... ..	173	362
Cattle ... ..	648	1,109
Mules ... ..	40	91



## SECTION XXX.

## PUBLIC HYGIENE.

## § 1. Introduction.

1. **General.**—Though the safeguarding of the public health as an organised department of administration is of comparatively modern growth, few branches of law have expanded more rapidly than the one relating to that subject. The loss of potential wealth incurred through preventable diseases and deaths is of grave concern to the nation, and is a matter which has received an increased amount of attention during the last few years both from the Commonwealth and State Governments and from the Health and other authorities in Australia. Numerous Acts of Parliament have been passed dealing with various aspects of the subject of public hygiene.

2. **State Legislation.**—In the first place there is a number of statutes, passed by the State Legislatures, such as Public Health Acts, Pure Food Acts, and Milk and Dairy Supervision Acts, providing, *inter alia*, for the constitution of Central Health Authorities, vested with definite powers, and furnishing the machinery necessary to enforce these powers. The general effect of this legislation has been to place local sanitary regulations and the execution of the Acts in the hands of the local authorities, subject to a general superintendence by a Government department.

3. **Commonwealth Legislation.**—Secondly, by the enactment of the Commerce (Trade Descriptions) Act 1905, the Quarantine Act 1908-1912, and the Customs Act 1910, the Commonwealth Government has taken the first steps towards the exercise of its constitutional powers for the protection of the public health. All these Acts are administered by the Department of Trade and Customs.

4. **Scope of Enquiry.**—In addition to the statutes already referred to, account should be taken of a large body of legislation which relates more or less indirectly to the subject of public hygiene. It deals with a great variety of subjects and matters, such as factories, conditions of employment, mines, merchant shipping, prevention of fire, buildings, dangerous performances, and other matters. There is also a number of statutes which have been passed with the object of protecting and supervising infant life. Owing to exigencies of space it is not possible in this section to do more than give a brief description of the scope and results of the legislation relating to public hygiene in its more important aspects.

## § 2. The Public Health Acts.

1. **General.**—The most important statutes relating generally to the subject of public hygiene are the Health Acts which have been passed in each State. While the scope of these Acts differs considerably in some of the States, there is a general similarity in their chief provisions and range of operation. The administration of the Acts is carried on by either a Central Board or a Commissioner of Health under Ministerial control, while their actual execution is imposed on local Boards of Health or on the local authorities constituted under the various Local Government Acts. Ordinarily the central authority has general supervisory powers over local Boards and authorities, and has power to

act in case of default by or in the absence of a local Board or authority as to any duty under the Act, and to recover all expenses incurred. The central authority may also make regulations, and the central and local Boards may make by-laws for various purposes generally specified in the Health Acts. It may be said that the chief functions of the Central Health Authorities are:—(a) the collection and dissemination of useful information relating to health and the prevention of disease, and (b) to control, stimulate, and, where necessary, to supplement the efforts of the local authorities.

Inspectors are sent to make reports on the hygienic conditions of country towns or districts with a view to assisting the local authorities with advice, and keeping the central department posted as to the activity or otherwise of these various bodies.

Rating powers for sanitary purposes are conferred on local authorities by the Local Government Acts.

The general powers of local authorities under the Acts extend to a variety of subjects and matters, including:—sewers and drains, sanitary conveniences, scavenging, cleansing, privies and cesspools, abatement of nuisances generally, offensive trades, public buildings, dwelling-houses and lodging-houses, hospitals, mortuaries, cemeteries and burial grounds, prevention of adulteration of food and drugs, unsound food, pollution of water, supervision of abattoirs and dairies, prevention of infectious diseases, and infant life protection.

**2. New South Wales.**—The Department of Public Health is controlled by the Minister of Public Health. The Director-General of Public Health is the chief executive officer, and is assisted by various staffs—medical, bacteriological, chemical, veterinary, dairy inspection, meat inspection, sanitary, pure food, and clerical. Briefly put, the work of the Department extends over the whole of the State, and embraces all matters relating to public health and the general medical work of the Government; the Director-General of Public Health holding the position of Chief Medical Officer of the Government as well as being permanent head of the department.

The Board of Health has certain statutory duties imposed upon it by various Acts of Parliament, and the Director-General is President of the Board. These duties consist largely in supervision of the work of local authorities (Municipal and Shire Councils), so far as that work touches upon public health matters connected with the following Acts:—Public Health Act 1902, Public Health (Amendment) Act 1915, Dairies Supervision Act 1901, Noxious Trades Act 1902, Cattle Slaughtering and Diseased Animals and Meat Act 1902, Pure Food Act 1908, and Private Hospitals Act 1908. The Board further possesses certain powers connected with public health matters under the Local Government Act 1906. It may be mentioned that the Board of Health is a nominee Board, created in 1881 and incorporated in 1894.

The Director-General of Public Health acts independently of the Board of Health as regards the State hospitals and asylums, and the various public hospitals throughout the State which receive subsidies from the Government.

**3. Victoria.**—In this State the Public Health Acts are administered by a Board composed of two members nominated by the Governor-in-Council and of seven members elected by the municipal councils. The medical and sanitary staffs of the Board consist of (a) the medical inspector, who is also chairman, (b) one assistant medical inspector, (c) two engineering inspectors, (d) three building inspectors, and (e) five health inspectors. The main function of the Board is to enforce the execution of the Health Acts by the local municipalities, but it has been found advisable to supplement this supervisory function by an active policy of inspection as to the sanitary condition of various districts, and the sampling of articles of food. The supervision of the sanitary

condition of milk production is under the Dairy Supervision Branch of the Department of Agriculture, but distribution is supervised by the Board of Health. Acts administered by the Department of Public Health are:—The Health Acts, the Cemeteries Act, and the Meat Supervision Act. The Consolidated Health Act 1915 includes the Adulteration of Wine Act and the Pure Food Act. The Cremation Act is now included under the Cemeteries Act 1915. The Department administers also the Midwives Act and the Venereal Diseases Act 1916. Under the last-mentioned Act it has been made compulsory for all persons affected with venereal disease to place themselves under the care of a duly qualified medical practitioner. Persons other than medical practitioners are prohibited from treating these diseases, or from supplying drugs or medicines. Registered pharmaceutical chemists may, however, dispense prescriptions to patients of medical practitioners. The Act contains various sections—with appended penalties for contravention—designed to check the spread of venereal diseases. A special clinic for the treatment of infected persons was opened in Melbourne in June, 1918. During that month the male patients treated numbered 182, and in July, 278 males were under treatment. Twenty-five women patients were also examined. Over 32 per cent. of those treated in June were alcoholic. It may be mentioned that the Act provides a heavy penalty in the event of a medical practitioner failing to notify cases of these diseases.

4. **Queensland.**—The Public Health Acts 1900 to 1917 are administered by the Commissioner of Public Health under the Home Secretary. The executive staff of the Department includes a health officer, a medical officer for the tuberculosis bureau, a medical officer for enthetic diseases, twelve food and sanitary inspectors, 2 staff nurses, in addition to rat squads in Brisbane. Northern offices, in charge of inspectors, are located at Rockhampton, Townsville, and Cairns. A laboratory of microbiology and pathology, in charge of a medical director, is controlled by the Department, and performs a wide range of microbiological work for the assistance of medical practitioners and the Department.

One function of the Department is to stimulate and advise local sanitary authorities on matters pertaining to the Health Acts, and, where necessary, to rectify or compel rectification, at the cost of the local authority, of sanitary evils produced by local inefficiency or apathy. Its powers and responsibilities were widely increased by the Health Act of 1911-17.

A scheme for the limitation of venereal disease in the metropolitan area is in operation in Brisbane under statutory powers. It includes compulsory notification, free treatment, and the free supply of salvarsan and allied remedies at all public hospitals. Compulsory segregation of venereally infective persons, of either sex, may be effected on occasion. The Health Acts Amendment Act 1917, has extended the venereal clauses to the whole State.

5. **South Australia.**—The Central Board of Health in South Australia consists of five members, three of whom (including the chairman, who is permanent head of the Department) are appointed by the Governor, while one each is elected by the city and suburban local Boards and the country local Boards. The Health Act 1898 provides that the municipal and district councils are to act as local Boards of Health for their respective districts. There are 183 of these local Boards under the general control and supervision of the Central Board. A chief inspector and two inspectors under the Health, Food, and Drugs Acts periodically visit the local districts, and see generally that the Boards are carrying out their duties. There is also a chief inspector of food and drugs (under the Food and Drugs Act 1908), who, in company with an analyst, visits country districts, and takes samples of milk, which are analysed on the spot. There are

two nurse inspectors employed in advising and assisting local Boards in connection with outbreaks of infectious diseases. In the outlying districts there are fourteen inspectors directly responsible to the Board.

**6. Western Australia.**—The legislation in this State is the Health Act 1911, with three amending Acts 1912 (2) and 1915. The central authority is the Department of Public Health, controlled by a Commissioner, who must be a qualified medical practitioner. The local authorities constitute:—(a) Municipal Councils, (b) Road Boards which may be appointed as such, (c) Local Boards of Health, composed of persons appointed by the Governor for a certain period. These Local Boards are only utilised where neither Municipal Councils nor Road Boards are available. Generally speaking, the Act is administered by the local authorities, but the Commissioner has supervisory powers, also power to compel local authorities to carry out the provisions of the Act. In cases of emergency the Commissioner may exercise all the powers of a local health authority in any part of the State.

All the usual provisions for public health legislation are contained in the Act, and in addition, provision is made for the registration of midwifery nurses, and the medical examination of school children.

The amending Act of 1915 deals exclusively with venereal diseases. The main features are:—(1) that none but qualified medical practitioners shall treat these diseases; (2) that all patients shall promptly place themselves under skilled treatment; and (3) that advertisements of medicines and appliances for the treatment of these diseases, of sexual infirmities, etc., shall no longer be published. For the carrying out of these objects, the Act provides, *inter alia*:—

- (a) For the notification (without name and address) of cases to the Commissioner of Public Health;
- (b) For the notification to the Commissioner of patients who discontinue treatment before receiving a certificate of cure;
- (c) For the exercise by the Commissioner, in certain circumstances, of compulsory powers against persons who neglect treatment;
- (d) For the provision of free treatment at hospitals, and at the hands of salaried or subsidised medical practitioners.

A penalty of £50, or imprisonment with hard labour for six months, is provided for any person who knowingly infects any other with any venereal disease, or does anything likely to lead to that result.

**7. Tasmania.**—The Public Health Act 1903 vests central control in the Chief Health Officer, who is the permanent head of the Department of Public Health. He is charged with very wide functions and powers, and in the event of the appearance of dangerous infectious disease (smallpox, plague, etc.) in the State, is vested with supreme power, the entire responsibility of dealing with such an outbreak being taken over by him from the local authorities. Local executive is vested in local authorities, who possess all legal requirement for the efficient sanitary regulation of their districts. Controlling and supervisory powers over these bodies are possessed by the Department of Public Health, whereby many of the powers conferred upon them may be converted into positive duties. One function of the Department is to advise local authorities on matters pertaining to the Health Act, and, where necessary, to rectify sanitary evils produced by local inefficiency or apathy. The department has three full-time inspectors, who assist and instruct the local sanitary inspectors, but full-time district health officers are not provided for. The

number of local authorities under the Public Health Act has been reduced to fifty-one since the Local Government Act 1906 came into force. All parts of Tasmania are now furnished with the administrative machinery for local sanitary government.

The Public Health Act 1917 deals with venereal diseases. Medical practitioners are required to report persons suffering from such diseases, but such notification, however, does not disclose the names or addresses of the patients.

Regulations under the Public Health Act 1903, as amended, for checking or preventing the spread of any infectious disease, came into force in February, 1918.

### § 3. Inspection and Sale of Food and Drugs.

1. **Introduction.**—The importance of securing a pure and wholesome supply of food and drugs is recognised by both the Commonwealth and State Parliaments. Under the Acts referred to later, and the regulations made thereunder, the importation of articles used for food or drink, of medicines, and of other goods enumerated, is prohibited, as also is the export of certain specified articles, unless there is applied to the goods a "trade description" in accordance with the Act. Provision is made for the inspection of all prescribed goods which are imported, or which are entered for export.

2. **Commonwealth Jurisdiction.**—Under Section 51 (i.) of the Commonwealth Constitution Act 1900, the Commonwealth Parliament has power to make laws with respect to trade and commerce with other countries and among the States. By virtue of that power, the Commerce (Trade Descriptions) Act 1905, and the Customs Act 1910, to which reference has already been made in another part of this book (see pp. 557, 558), were passed.

3. **State Jurisdiction.**—The inspection and sale of food and drugs is also dealt with in each State, either under the Health Acts or under Pure Food Acts. There is, in addition, in the several States, a number of Acts dealing with special matters, such as the adulteration of wine and the supervision of meat. The sanitary condition of the milk supply is also subject to special regulations or to the provisions of special Acts.

(i.) *General Objects of Acts.* The general objects of the Acts dealing with the inspection and sale of food and drugs are to secure the wholesomeness, cleanliness, and freedom from contamination or adulteration of any food, drug, or article, and for securing the cleanliness of receptacles, places, and vehicles used for their manufacture, storage, or carriage. The sale of any article of food or any drug which is adulterated or falsely described is prohibited, as also is the mixing or selling of food or drugs so as to be injurious to the health. A more detailed account of the various State Acts and of their administration and enforcement is given in previous issues of the Year Book (see No. 6, p. 1090).

(ii.) *Inspection and Analysis.* Power is given to any authorised officer to enter any place for the purpose of inspecting any article intended to be used as a food or drug and also to inspect articles being conveyed through the streets, by water or by rail. He may take samples for examination or analysis, and may seize for destruction articles which are injurious to health or unwholesome. Chemical analyses and bacteriological examinations are made by qualified officers. Special provision is generally made in the Acts with regard to the sale of preservatives and disinfectants.

(iii.) *Advisory Committees.* In New South Wales, Victoria, and South Australia Advisory Committees have been appointed for the purpose of prescribing food standards and for making recommendations generally with a view to carrying out the provisions of the Acts. The duty of enforcing these regulations is entrusted to the local authorities, but it is stated that up to the present comparatively few of the local councils seem to have realised the importance of guarding the food supplies of the people.

**4. Food and Drug Standardisation.**—With the object of securing uniformity of food and drug standards of the principal manufactured products sold in the Commonwealth, a conference, which was attended by representatives of the Commonwealth and all the individual States except Western Australia, was opened in Sydney on 8th June, 1910. The result of this conference was that several adoptions of standards of food and drugs, and labelling of articles for consumption were made, so as to obtain uniformity in the several States. In June, 1913, a second conference of the principal Health Officers of the Commonwealth and States was held in Melbourne. Emphasis was laid on the importance of fixing uniform standards throughout the Commonwealth for food and drugs, and of also securing uniformity of administration of the laws relating thereto. It was also urged that, as the uniform enforcement of standards throughout the Commonwealth depends to a great extent on the methods of analysis, the Commonwealth and State analysts should prepare standard methods for determination of the chemical standards adopted. The resolutions of the conference were submitted to the Premiers' Conference held in Melbourne in March, 1914. As a result of resolutions then adopted, each State has issued new regulations which have had the effect of ensuring uniformity throughout the Commonwealth.

**5. The Sale of Poisons.**—In Victoria, New South Wales, Western Australia, and Tasmania, the enactments for regulating the sale and use of poisons are administered by the Pharmacy Boards in the respective States. In South Australia, the sale of poisons is provided for by regulations under "The Food and Drugs Act 1908," administered by the Central Board of Health. In Queensland, the Poisons Act was formerly administered by the Police, but it is now administered by the Health Department.

In all the States the necessity of responsible control of poisons has been realised. The preamble to the Victorian Act, which State alone retains it, emphasises this necessity, and contains the key to the objects sought to be obtained. The preamble is as follows:—

"Whereas the unrestricted sale of poisons often leads to fatal accidents and the commission of crime: And whereas large quantities of arsenic, strychnine, and other poisons are used in Victoria for pastoral, agricultural, and other purposes, and fatal accidents occur by reason of the careless custody and use of such poisons by the owners thereof, or persons in their employ: And whereas it is expedient for the safety of the public to regulate the sale of poisons, and to make provision for the exercise of proper precautions in the use of same: Be it therefore enacted, etc., etc."

In New South Wales and Victoria the Government subsidises the Pharmacy Board, in order to enable it to carry out the provisions of the Poisons Act. The subsidy is granted on the ground that the Act is passed for the public safety.

Generally, the poisons legislation throughout the Commonwealth seeks to protect the public, and aims at the prevention and detection of crime by restricting the class of persons allowed to deal in poisons, and by imposing conditions of sale. No persons, other than legally qualified medical practitioners and registered pharmaceutical chemists, are permitted to sell poisons without special license from the bodies administering the legislation in the respective States. These licenses are issued to persons in business

distant from four to five miles from a registered chemist, on production of certificates from medical practitioners, police, or special magistrates or justices as to the applicant's character and fitness to deal in poisons. Annual license fees, ranging from 5s. to 20s., are charged in the several States.

Special conditions are imposed which must be observed by sellers of poisons, namely:—special labelling, the use of special containers, entry in the poisons book of sales of the more dangerous poisons, presentation of a doctor's order by the purchaser where hypnotic and narcotic drugs are required, colouring of arsenic and strychnine, prohibition of sale of certain poisons to persons unknown to the seller. In South Australia, the regulations provide that vendors other than legally qualified medical practitioners, wholesale dealers, and registered pharmaceutical chemists, shall keep all poisons in a cupboard or room with the word "poisons" printed on the door. In Victoria, such vendors must keep poisons in the original package or container. The South Australian regulations also provide that poisons are to be delivered in bottles distinguished by touch from ordinary medicine bottles or from bottles ordinarily used for beverages.

Poisons may be sold by correspondence. In such cases the letter ordering the poisons shall be preserved by the vendor and a memorandum of the date of the letter, by whom it is written, and the quantity and particulars of the poison therein ordered shall be entered in the poisons book, and no person shall sell any such poison so ordered to any person with whose signature he is not acquainted, unless such signature has been witnessed or purports to have been witnessed by a justice, clergyman, or public officer, or is authenticated by some person known to the vendor.

In Victoria and New South Wales, arsenic and strychnine or uncoloured preparations thereof are not permitted to be sold unless—in the case of arsenic or such preparation thereof—it is before the sale mixed with soot or indigo in the proportion of at least one ounce of soot in Victoria, and one ounce of soot or half an ounce of indigo in New South Wales, to one pound of arsenic—and in the case of strychnine or such preparation thereof—it is before the sale mixed with Armenian bole or other colouring matter.

Exemptions from the regulations are made in some States in the case of sales of poisons for agricultural, horticultural and photographic purposes in so far that any person may sell them subject to the restrictions as to the class of container and the manner in which they may be sold. The sale of what are generally known as industrial poisons, such as sulphuric acid, nitric acid, hydrochloric acid, soluble salts of oxalic acid, etc., is governed by regulations, as also is the sale of poisons for the destruction of rats, vermin, etc.

In each State provision is made for the infliction of stringent penalties in all cases of non-observance of the law.

#### § 4. Milk Supply and Dairy Supervision.

1. **Introduction.**—Milk is pre-eminently the food which needs most careful protection at each successive stage of its production, carriage, storage, and delivery, from exposure to infection from extraneous matter. The problem of obtaining a pure and clean milk supply has accordingly, during the last few years, demanded an increasing amount of attention from the Health authorities, and in each State special laws and regulations have been passed governing the supervision of dairy farms and dairies.

(i.) *General Provisions of Acts and Regulations.* In general, it may be said that it is not lawful to sell or offer for sale any milk which is not fresh or wholesome, or which has been watered, adulterated, reduced, or changed in any respect by the addition of water or any other substance, or by the removal of cream. Regulations made under the Acts provide for the carrying-on of dairy farms, dairies, factories, and creameries, under proper and wholesome conditions; and supervisors and inspectors are appointed to enforce these provisions. Generally, the execution and enforcement of the Acts are left to the local authorities.

(ii.) *Registration of Dairymen and Milk Vendors.* Dairymen, milk vendors, and dairy-factory or creamery proprietors are required, under penalty, to be registered. In some States registration must be applied for before commencing to trade; in other States it must be applied for within a specified time after the premises are first used.

(iii.) *Inspection of Premises.* Dairy inspectors employed by the central departments traverse the principal dairying districts, and inspect dairy premises, dairy herds, appliances, and utensils, and ascertain in what fashion the various local authorities carry out the duties imposed on them. Regulations and instructions are issued by the central departments for the information and guidance of local authorities, dairymen, milk vendors, and others, as to precautions to be observed in order to protect milk from contamination, and to ensure cleanliness as to the structural arrangements, dimensions and ventilation of premises, and as to the care and health of dairy cattle. If an inspector is satisfied that any premises or apparatus used therein are unclean, or unfit for the purposes of dairy produce, he may require the owner to put the same in a proper and wholesome condition.

(iv.) *Notification of Diseases.* Every dairyman or milk vendor is required to report immediately any case of certain prescribed infectious diseases occurring in any human being engaged at or residing on his premises. It is the duty of the local authority to take care that communication between all persons belonging to the infected household and the milk business in all its details is prevented. Cases of notifiable diseases occurring in animals at a dairy farm or dairy must also be reported immediately, and the owner must at once isolate the diseased animal. The sale of milk from an infected cow is prohibited, and, under certain circumstances, an inspector may order an infected animal to be branded or destroyed.

(v.) *Analysis of Dairy Produce.* The local authority generally has power to enter premises and to take away samples of the milk, cream, butter, or cheese there found, and of the water supply therein, for the purpose of examination or analysis.

2. **Number of Dairy Premises Registered.**—The following table shews so far as the particulars are available the number of dairy premises registered and the number of cattle thereon during the year 1916-17.

**DAIRY PREMISES REGISTERED AND CATTLE THEREON, 1916-17.**

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.
Premises registered ...	17,751	12,662	9,716	1,112	307	307
Cattle thereon ...	743,751	107,949	235,742	6,765	5,743	*

\* Not available.



3. **New South Wales.**—The provisions of the Dairies Supervision Act 1901 extend to the whole of the Eastern and Central Divisions of this State and to all important dairying districts further inland. Other districts are brought under the operation of the Act by proclamation from time to time. Every dairyman, milk vendor, and dairy factory or creamery proprietor is required, under penalty, to apply for registration to the local authority for the district in which he resides, and also to the local authority of every other district in which he trades. Registrations must be applied for before commencing to trade and must be renewed annually. The Chief Veterinary Inspector is in charge of all inspectorial work under the Dairies Supervision Act 1901, and has assisting him one assistant veterinary inspector and 14 qualified dairy inspectors, each in charge of a district.

4. **Victoria.**—The inspection and supervision in Victoria of dairies, dairy farms, dairy produce, milk stores, milk shops, milk vessels, dairy cattle and grazing grounds are provided for by the Dairy Supervision Act 1915, administered by the Minister of Agriculture. Under the Health Act 1890 and the Pure Food Act 1905, however, the Department of Public Health is empowered to take samples of food (including milk, cream, butter, cheese, and other dairy products) for examination or analysis, to institute prosecutions in case of adulterated or unwholesome food, and to carry out inspection of dairies, etc., in districts not yet proclaimed under the Act. By the end of the year 1917, 106 municipal districts, comprising about one-third of the area of the State, had been brought under the operation of the Dairy Supervision Act. The municipal councils have the option of carrying out the execution of the Act themselves or of electing for execution by the Department of Agriculture; up to the present all but one of the municipalities in which the Act has been proclaimed have elected for Departmental execution.

5. **Queensland.**—The control and supervision of the milk supply and of dairies and the manufacture, sale, and export of dairy produce in Queensland are provided for by the Dairy Produce Acts 1904 and 1911, administered by the Department of Agriculture and Stock. These Acts and the regulations made thereunder apply only to prescribed districts, which comprise the whole of the coastal district from Rockhampton down to the New South Wales border, and the Darling Downs, Maranoa, Mackay, and Cairns districts.

6. **South Australia.**—The Food and Drugs Act 1908, and the Regulations made thereunder, provide for the licensing of vendors of milk and the registration of dairies, milk stores and milk shops. The Metropolitan County Board carries out the requirements of the metropolitan area. In the country, the majority of local authorities have not made statutory provision for the licensing of vendors of milk and the registration of dairy premises; and, in consequence, the Central Board of Health provides for such under the Act.

7. **Western Australia.**—Control of dairies throughout the State is in the hands of the Public Health authorities under the provisions of the Health Act. The inspectors under the Act supervise all sanitary conditions of the premises, the examination of herds being carried out by officers of the Department of Agriculture for the Health Department. This inspection of herds is regularly carried out, and in the case of such animals as arouse suspicion, the tuberculin test is applied. Regular inspection of premises from a sanitary point of view is also maintained.

8. **Tasmania.**—Local authorities are responsible for the dairies in their respective districts. By-laws for the registration and regulation of dairies have been drafted by the Public Health Department, and in the majority of cases have been adopted by the

local authorities. By the Food and Drug Act, which came into force March, 1911, milk sampling is carried out by the local authorities. During 1913, attention was drawn by circular to the requirements of local authorities with regard to dairies, and a special report is now required before licenses are granted. An Act also provides for the registration and inspection of dairies and other premises where dairy produce is prepared, and regulates the manufacture, sale, and export of dairy produce.

## § 5. Prevention of Infectious and Contagious Diseases.

1. **General.**—The provisions of the various Acts as to precautions against the spread and the compulsory notification of infectious diseases may be conveniently dealt with under the headings—(a) Quarantine; (b) Notifiable Diseases; and (c) Vaccination.

2. **Quarantine.\***—Under the Commonwealth Quarantine Act 1908, the systems of State quarantine formerly in operation were abolished, and a branch of the Department of Trade and Customs, under the immediate control of a Director of Quarantine, was created on 1st July, 1909. Amending Quarantine Acts were passed in 1912 and 1915, correcting certain imperfections in the original Act, and conferring additional powers. Uniformity of procedure has been established throughout the Commonwealth in respect of all vessels, persons, and goods arriving from overseas ports or proceeding from one State to another, and in respect of all animals and plants brought from any place outside Australia. In regard to interstate movements of animals and plants, the Act becomes operative only if the Governor-General be of opinion that Federal action is necessary for the protection of any State or States; in the meantime the administration of interstate quarantine of animals and plants is left in the hands of the States.

(i.) *Transfer of Quarantine Stations.* The transfer from the States to the Commonwealth of the quarantine stations, for the purposes of human quarantine, at the following places, has been effected:—(a) *New South Wales.* North Head (near Sydney). (b) *Victoria.* Point Nepean (near Melbourne). (c) *Queensland.* Colmslie and Lytton (near Brisbane), and Thursday Island. (d) *South Australia.* Torrens Island (near Adelaide). (e) *Western Australia.* Woodman's Point (near Fremantle), Albany, and Broome. (f) *Tasmania.* Bruny Island (near Hobart). Animal quarantine stations in each of the States have also been transferred, and steps are being taken for the taking over by the Commonwealth of other stations. New buildings and improvements are in course of construction at several of the transferred stations. New stations have been constructed at Townsville in Queensland, and at Bunbury, Western Australia.

(ii.) *Administration of Act.* The administration of the Act in respect of the general division, *i.e.*, vessels, persons, and goods, and human diseases, is under the direct control of the Commonwealth in all States except Tasmania. A medical chief quarantine officer, with assistant quarantine officers, has been appointed in each State. This officer is charged with responsible duties, and is under the control of the Director of Quarantine. In Tasmania, the chief health officer of the State acts as chief quarantine officer, and payment is made to the State for his services. The administration of the Act in the Northern Territory has been combined with that of Queensland under the chief quarantine officer for the North-eastern Division. The administration of the Acts and regulations relating to overseas animal and plant inspection and quarantine is also carried out by the officers of the State Agricultural Departments acting as quarantine officers.

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\* From information furnished by the Federal Director of Quarantine.

(iii.) *Chief Provisions of Act.* The Act provides for the inspection of all vessels from overseas, for the quarantine, isolation, or continued surveillance of infected or suspected vessels, persons, and goods, and for the quarantining and, if considered necessary, the destruction of imported goods, animals, and plants. The obligations of masters, owners, and medical officers of vessels are defined, and penalties for breaches of the law are prescribed. Power is given to the Governor-General to take action in regard to various matters by proclamation, and to make regulations to give effect to the provisions of the Act. Quarantinable diseases are defined as small-pox, plague, cholera, yellow fever, typhus fever, leprosy, or any other disease declared by the Governor-General, by proclamation, to be quarantinable. "Disease" in relation to animals means certain specified diseases, or "any disease declared by the Governor-General, by proclamation, to be a disease affecting animals." "Disease" in relation to plants means "any disease or pest declared by the Governor-General, by proclamation, to be a disease affecting plants." The term "plants" is defined as meaning "trees or plants, and includes cuttings and slips of trees and plants and all live parts of trees or plants and fruit."

(iv.) *Proclamations.* The proclamations so far issued specify the diseases to be regarded as diseases affecting animals and plants; appoint first ports of landing for imported animals and plants and first ports of entry for overseas vessels; declare certain places beyond Australia to be places infected, or as places to be regarded as infected with plague; prohibit the importation (a) of certain noxious insects, pests, diseases, germs, or agents, (b) of certain goods likely to act as fomites, and (c) of certain animals and plants from any or from certain parts of the world; and fix the quarantine lines in certain ports of Australia.

(v.) *Regulations.* Regulations have been made prescribing the quarantine signal; the hours of clearance of vessels; forms of notices, orders, reports, and bonds to be used by masters, medical officers, quarantine officers, and importers; the period of detention of vaccinated and unvaccinated persons in quarantine; the conditions of removal of goods and mails; the method of disinfection of persons, animals, and infected or suspected articles; the notification of certain diseases, including venereal diseases; the conditions under which certain animals not prohibited may be imported; the sustenance charges for quarantine animals; the conditions of importations of hides, skins, wool, hair, bones, and animal manure; the method of carrying out the quarantining, disinfection, fumigation, and treatment of plants and packages. Regulations have also been made with the object of preventing the ingress to and the egress from vessels of rats and mice, and for the destruction of rats, mice, and other vermin.

(vi.) *General.* The procedure has already been greatly simplified. Instead of all overseas vessels being examined in every State, as was formerly the case, those arriving from the south and west are now examined only at the first port of call, and pratique is given for the whole of the Commonwealth, except in cases of suspicious circumstances, while vessels arriving from the northern routes are examined only at the first and last ports. It is expected that the restrictions placed upon overseas vessels will be further removed as the machinery of quarantine is improved. The present freedom from certain diseases which are endemic in other parts of the world, would, however, appear to justify the Commonwealth in adopting precautionary measures not perhaps warranted in the already infected countries of the old world.

3. *Notifiable Diseases.*—Provision exists in the Health Acts of all the States for precautions against the spread and for the compulsory notification of infectious diseases. When any such disease occurs, the Health Department and the local authorities must at once be notified. In some States notification need only be made to the latter body. The duty of giving this notification is generally imposed, first, on the head

of the house to which the patient belongs, failing whom on the nearest relative present, and on his default on the person in charge of or in attendance on the patient, and on his default on the occupier of the building. Any medical practitioner visiting the patient is also bound to give notice.

(i.) *Notifiable Diseases Prescribed in each State.* In the following statement those diseases which are notifiable in each State are indicated by a cross:—

#### DISEASES NOTIFIABLE UNDER THE HEALTH ACTS IN EACH STATE.

Particulars.	N.S.W.	Vic.	Q'land.	S.A.	W.A.(d)	Tas.(e)
Anthrax ...	...	+	...	+	...	...
Ankylostomiasis ...	...	...	+	...	...	...
Beri-beri ...	...	...	...	...	+	...
Bilharziasis ...	...	...	+	+	+	+
Bubonic plague ...	+	+	+	+	+	+
Cerebro-spinal fever ...	+	+	+	+	...	...
Cerebro-spinal meningitis ...	+	+	+	+	+	+
Chancroid (soft chancre) ...	...	+(b)	+	...	+	+
Cholera ...	...	+	+	+	+	+
Continued fever ...	...	+	+	+	+	...
Diphtheria ...	+	+	+	+	+	+
Dysentery ...	...	...	+(c)	...	...	...
Enteric fever ...	+	+	+	+	+	+
Erysipelas ...	...	+	+	+	+	...
Favus ...	...	...	...	+	...	...
Gonorrhœa ...	...	+(b)	+	...	+	+
Hæmaturia ...	...	...	...	...	+	...
Infantile paralysis ...	+	+	+	...	+	+
Infective granuloma of the pudenda ...	...	+(b)	+	...	+	...
Leprosy ...	+	+	+	+	+	+
Malarial fever ...	+	+	+	+	+	...
Measles ...	...	+	...	+	...	...
Membranous croup ...	+	+	+	+	+	...
Ophthalmia neonatorum ...	...	+(b)	...	...	+	+
Poliomyelitis anterior acuta ...	+	+	+	+	+	+
Puerperal fever ...	...	+	+	+	+	+
Pulmonary tuberculosis(phthisis) ...	+(a)	+	+	+	+	+
Relapsing fever ...	...	+	+	+	+	...
Scarlet fever ...	+	+	+	+	+	+
Scarlatina ...	+	+	+	+	+	+
Septicæmia ...	...	+	...	...	+	...
Small-pox ...	+	+	+	+	+	+(f)
Syphilis ...	...	+(b)	+	...	+	+
Trichinosis ...	...	+	...	+	...	...
Typhoid ...	+	+	+	+	+	+
Typhus fever ...	...	+	+	+	+	+
Whooping cough ...	...	+	...	+	...	...
Yellow fever...	...	+	+	+	+	...

(a) In metropolitan and certain proclaimed districts. (b) Under the Venereal Diseases Acts. (c) Thursday Island area only. (d) Other diseases enumerated as notifiable under "The Health Act 1911" of this State are pyæmia, and Malta, dengue, low and Colonial fevers. (e) Venereal diseases are notifiable under The Public Health Act 1917. (f) Chicken-pox has been declared a notifiable disease to render certain its differential diagnosis from small-pox.

(ii.) *Duties of Authorities.* As a rule the local authorities are required to report from time to time to the Central Board of Health in each State as to the health, cleanliness, and general sanitary state of their several districts, and must report the appearance of certain diseases. Regulations are prescribed for the disinfection and cleansing of

premises, and for the disinfection and destruction of bedding, clothing, or other articles which have been exposed to infection. Bacteriological examinations for the detection of plague, diphtheria, tuberculosis, typhoid, and other infectious diseases within the meaning of the Health Acts are continually being carried out. Regulations are provided in most of the States for the treatment and custody of persons suffering from certain dangerous infectious diseases, such as small-pox and leprosy.

(iii.) *New South Wales.* The proclamation and notification of infectious diseases are dealt with in Part III. of the Public Health Act 1902. Special provision is made by that Act for the notification of small-pox and leprosy, and for the custody and treatment of lepers. Special reports dealing with outbreaks and the ætiology of plague, leprosy and smallpox have been published.

(iv.) *Victoria.* Under Part VI. of the Public Health Act 1915, the notification of cerebro-spinal fever or meningitis, continued, enteric and scarlet fever, diphtheria, infantile paralysis, membranous croup, poliomyelitis anterior acuta, pulmonary tuberculosis, scarlatina, and typhoid is compulsory. An infectious disease cannot be declared notifiable unless it is prevalent; hence smallpox, cholera, etc., are not notifiable diseases. An Act, passed in 1907, requires medical practitioners and registrars to report all cases of notifiable diseases coming under their notice in any proclaimed district, and not merely those cases which occur in the district in which the practitioner or registrar is resident.

(v.) *Queensland.* Under Part VII. of the Health Act 1900-1917, all cases of infectious diseases must be notified; special provision is made for notification of small-pox. No case of plague has occurred since 1908. Provision is made for the diagnosis of leprosy, and lepers are sent to Peel Island, Moreton Bay.

(vi.) *South Australia.* In this State cases of infectious diseases must be reported to the local Board, under the provisions of Part VIII. of the Health Act 1898. The onus of notification is placed primarily on the head of the family, and, failing him, the nearest relative, the person in charge, or the occupier of the house; in any case, notification must be given by the medical practitioner attending.

(vii.) *Western Australia.* The necessity for providing hospital treatment for infectious cases has been recognised by the Boards of Health, and in several instances wards for the treatment of these cases have been erected.

(viii.) *Tasmania.* Provisions regarding the prevention and notification of infectious diseases are contained in the Public Health Act 1903, as amended in 1908.

4. *Vaccination.*—In the State of New South Wales there is no statutory provision for compulsory vaccination, though such exists in all the other States of the Commonwealth. With the exception of Victoria, the Vaccination Acts are, however, not generally enforced. The Calf Lymph Depot of the State of Victoria was transferred to the Commonwealth in October, 1911. It is now designated "The Commonwealth Vaccine Depot," and is under the control of the Director of Quarantine. Lymph is prepared in this depot to meet the requirements of the Quarantine Service and of all the States. A considerable demand exists for lymph in the State of Victoria, where infantile vaccination is compulsory, but in the other States the normal requirements are small. During the years 1912, 1913, and 1914, the output of lymph in doses from the depot was respectively 65,000, 570,000, and 146,000. The number of doses issued in 1913 was, however, abnormal, and was due to the epidemic of small-pox which broke out in Sydney at the end of June, this being followed by large numbers of vaccinations in each State.

The following table shews, so far as particulars are available, the number of persons vaccinated in each State from 1911 to 1917 inclusive:—

NUMBER OF PERSONS VACCINATED IN EACH STATE, 1911 to 1917.

Year.	N.S.W.*	Victoria.†	Q'land.	S. Aust.	W. Aust.	Tasmania.
1911	20	20,562	†	1,431	†	†
1912	...	21,548	†	†	†	†
1913	520,000	24,562	33,500	†	12,000	3,204
1914	6,629§	23,536	30,000	940	3,017	†
1915	4,080§	24,186	58	854	†	†
1916	2,618	20,916	†	531	†	†
1917	4,663	19,759	†	251	†	†

\* By officers of the Health Department and at public depots. † Children only, who were vaccinated under the Act, see (ii.) below. ‡ Returns not available. § Exclusive of the military. || At Health Department, Brisbane.

(i.) *New South Wales.* Although there is no provision for compulsory vaccination in this State, public vaccinators have been appointed. The large number of vaccinations in 1913 was due to the epidemic of small-pox in New South Wales, 1073 cases of the disease being recorded. No statistics are available as to the proportion of the population who have been vaccinated, but a report of the Principal Medical Officer of the Education Department states that out of 94,918 children medically examined during 1914, 33,109, or 35 per cent., had been vaccinated.

(ii.) *Victoria.* Compulsory vaccination is enforced throughout the State, under Part IX. of the Health Act 1890. From the year 1873 up to the present time, it is estimated that 72 per cent. of the children whose births were registered have been vaccinated. Free lymph is provided. As a result of the small-pox epidemic in New South Wales in 1913, it is estimated that, exclusive of the vaccinations of children given in the above table, about 40 per cent. of the adult population were vaccinated or re-vaccinated in 1913. The number of children vaccinated in Victoria during 1917 was 19,759.

(iii.) *Queensland.* Although compulsory vaccination is provided for in this State, under Part VII. of the Health Act 1900-1917, its operation has not been gazetted in force. Vaccination thus being purely voluntary, medical practitioners do not notify vaccinations. In the early part of 1912, the Queensland Government sent a medical expedition to the islands in Torres Straits. Over 1200 natives were vaccinated with a view to reducing the risk of the introduction of small-pox from New Guinea. As a result of the small-pox epidemic in Sydney, approximately 33,500 people were vaccinated in Queensland during 1913. Information as to vaccinations in 1917 is not available.

(iv.) *South Australia.* The Vaccination Act 1882, which applies to South Australia and the Northern Territory, is administered by the vaccination officer of the State. Under this Act vaccination was compulsory, but in 1917 an Act to abolish compulsory vaccination was passed. It is estimated that about 15 per cent. of the children born are vaccinated. The total number of vaccinations in 1917 was 251.

(v.) *Western Australia.* In this State vaccination is compulsory under the Vaccination Act 1878, which, however, remains almost a dead letter. Seeing that under the Health Act 1911, a "conscientious objection" clause was inserted, which is availed of by the majority of parents, the number of children vaccinated is very small. All district medical officers are public vaccinators, but they receive no fee for vaccinations. Owing to the outbreak of small-pox in Sydney during 1913, it is estimated that not less than 12,000 children and adults were vaccinated in that year, while nearly 3000 vaccinations were effected during 1914 at Bunbury owing to an outbreak of small-pox, which occurred there in May of that year.

(vi.) *Tasmania*. All infants in Tasmania are nominally required, under the Vaccination Act 1898, to be vaccinated before the age of 12 months, unless either (a) a statutory declaration of conscientious objection is made, or (b) a medical certificate of unfitness is received. The Act has not been enforced, and upto June, 1913, practically no vaccination of infants had been performed since the small-pox outbreak in Launceston in 1903, when 66 cases occurred with 19 deaths. During that year 24,857 were vaccinated in Tasmania. In 1913, owing to the outbreak of small-pox in New South Wales, there were 3204 cases of vaccination by public vaccinators. Information in regard to vaccinations in recent years is not available.

5. **Commonwealth Serum Laboratories.**—It is proposed to extend the establishment for the preparation of calf lymph, situated at Royal Park, near Melbourne, and to prepare thereat the recognised serum products and vaccines for the treatment of human diseases. It is hoped that the enlarged institution will be in full operation during 1919.

## § 6. Tropical Diseases.

1. **Introduction.**—The remarkable development of parasitology in recent years and the increase in knowledge of the part played by parasites in human and animal diseases have shewn that the difficulties in the way of tropical colonisation, in so far as these arise from the prevalence of diseases characteristic of tropical countries, are largely removable by preventive and remedial measures. Malaria and other tropical diseases are coming more and more under control, and the improvements in hygiene which science has accomplished lend an entirely new aspect to the question of white settlement in countries formerly regarded as unsuitable for colonisation by European races. In Australia the most important aspect of this matter is at present in relation to such diseases as filariasis, malaria, and dengue fever, which, although practically unknown in the southern States, are of common occurrence in many of the tropical and sub-tropical parts of the Commonwealth.

2. **Queensland.**—(i.) *Transmission of Disease by Mosquitoes.* The existence of filariasis in Queensland was first discovered about thirty-four years ago. The parasite of this disease (and probably of dengue fever also), is transmitted by *Culex fatigans*, the mosquito most prevalent in Queensland. The *Stegomyia fasciata*, conveyor of yellow fever, is another common domestic mosquito throughout Eastern Queensland during the summer, but so far has never been infected from abroad. Occasional limited outbreaks of malaria occur in the northern parts of the State; one at Kidston, in 1910, resulted in 24 deaths. The infection was traced to newcomers from New Guinea. For many years efforts were made to deal with the mosquito question in the larger centres, but owing to the absence of statutory powers, these had only limited success. Special provisions of the Health Act Amendment Act of 1911 remedied this defect, and extensive operations, involving oiling, drainage, tank screening, the use of larvivorous fish, and other measures were organised by the Department of Public Health. The actual cost of the work during 1913 amounted to £795, of which the metropolitan local authorities contributed £420. Some 50,000 square yards of natural breeding places were attended to weekly by a special mosquito squad, over 2000 street gullies were oiled, and tank screening with fine wire gauze was steadily enforced on owners and occupiers. The work was continued through the winter, in order to reach the eggs and larvæ at their period of lowest vitality. Operations have been, however, partly discontinued from May, 1914, owing to the unwillingness of the municipal councils to incur the expenditure entailed. It is hoped, however, by the Health Department, that a rigorous campaign will again be conducted against this pest, not only in Brisbane, but in every other closely inhabited part of the State, as it is considered that closer communication between the State and other countries, brought about through war conditions, is resulting in the return to Queensland of soldiers and sailors suffering from malaria.

(ii.) *Institute of Tropical Medicine, Townsville.* In January, 1910, the Australian Institute of Tropical Medicine was inaugurated by the Commonwealth Government at Townsville. A special staff was appointed to carry out both the hospital and research work necessary. Owing to the scarcity of suitable laboratory animals for experimental purposes, and also to the absence of any systematic scheme of collaboration with other medical men throughout the tropical parts of Queensland, the initial difficulties confronting the director were considerable. These difficulties are, however, being overcome, and much valuable research has been carried out. At the present time an important examination is being carried out of the blood conditions of children born and reared in North Queensland, with a view of proving whether the blood of the children was normal as far as the formed elements are concerned, or whether deterioration had taken place, effecting an anemia which could be attributed to climatic conditions only. A large amount of work is in progress regarding physiological changes occurring in the white races under the tropical conditions prevalent in North Queensland, especial attention being devoted in connection therewith to metabolism, etc. It is hoped that the result of the work of the institute on these lines will decide the question of the climatic influence on the white man in the tropics, and will indicate whether the great experiment of populating tropical Australia with a white working community can be accomplished. The staff of the institute has for some time been carrying out researches on diseases prevalent in North Queensland, such as malaria, sprue, filariasis, etc., and the results thereof have been published in various medical and scientific journals.

An entomological survey of Tropical Australia as to the prevalence and distribution of biting flies, mosquitoes, and other biting insects, known or likely to be disease-transmitters, has been in progress for several years.

The staff of the institute consists of the director, and a biochemist, bacteriologist, and entomologist.

3. **Northern Territory.**—While the Territory is conspicuously free from most of the diseases which cause such devastation in other tropical countries, a slight amount of malaria exists, and, although such cases as occur very rarely end fatally, the Administrator is taking measures for the destruction of mosquito larvæ wherever settlements or permanent camps are formed, while precautions are being taken to prevent the collection of stagnant water in such localities.

4. **Other States.**—In Western Australia it is stated that malaria is not known to exist south of the 20th parallel, while filariasis has not been discovered at all. No mosquito-borne diseases are known to exist in Victoria, South Australia or Tasmania, and it is stated that filariasis is uncommon in New South Wales, the only cases known being imported ones. Kerosene and petroleum have been successfully used to destroy mosquitoes at various places in these States, both by municipalities and private individuals.

## § 7. Supervision of Infant Life.

It has been frequently stated in recent years that when the social, climatic, and industrial conditions are taken into consideration, the infantile mortality of Australia, particularly in the large towns, is much higher than it should be. It is now generally recognised, however, that infant mortality is largely attributable to parental ignorance and neglect, and that, in particular, improper feeding is accountable for perhaps the majority of infant deaths. In all the States of the Commonwealth, Acts have been passed with the object of generally supervising the conditions of infant life and of reducing the rate of infantile mortality, and in many of the large towns measures have been adopted by private individuals to spread among the mothers a knowledge of the best methods of feeding and caring for their infants. Milk institutes have also been established after the manner of the *Gouttes de Lait*\* in Europe, with the object of reducing the number of deaths of infants from milk poisoning in the summer months.

\* Organised action in this direction commenced in 1894 in Belgium. The original Belgian Society is known as the "*Société des Gouttes de Lait*." The movement has become an international one, and branches of the Society have been founded all over Europe. Similar philanthropic work was commenced in the United States of America before 1894.



*Queensland Hookworm Campaign.* It has recently been found that infection by the hookworm (*Ankylostoma duodenale*) is more widely spread in Queensland than was popularly realised. Of 13,720 whites and 401 aboriginals examined,\* 20.3 per cent. and 76.3 per cent. respectively were found to be infected, the examination embracing the region between Cooktown and Townsville. The detailed results were as follow:—Cooktown 10.8 per cent.; Mossman, 16.4 per cent.; Cairns, 17.7 per cent. of the persons examined: Townsville, 8.4 per cent. of the school children examined. In the sugar districts, the Cairns district shewed 25.2 per cent. cases of infection; Johnstone River, 24.7 per cent.; Cardwell, 43.1 per cent. and Herbert River, 32.1 per cent.

Analysed according to age, it was found that from 6 to 18 years of age the infection was 41.9 per cent. of the cases examined, and for all other ages, 11.7 per cent. According to race, aboriginals shewed 76.3 per cent. of infection; Italians, 43.7 per cent.; other white races, 20.3 per cent. The severity of the disease, as indicated by the resulting anæmia, was shewn by 1322 cases of examinations of hæmoglobin: these gave an average of 72.9 per cent. of the normal, and a minimum of 20 per cent. of the normal. The effect of the disease was to produce marked dwarfing, retardation—both physical and mental, sexual immaturity, and impotence. The mental retardation in children was found to increase with age as follows:—

Age last birthday	... 10	11	12	13	14	15
Retardation in years	... 1.6	2.2	2.5	3.2	3.5	4.5

In the case of children growth and development took place in quite a remarkable way as soon as cure was effected. Instruction given as to the necessary sanitation methods to safeguard the population from infection was appreciated and responded to. Since the hookworm can penetrate the skin very readily, it is essential that where the temperatures admit of its development, great care should be taken not to pollute the soil with human excreta. Experience has shewn that proper demonstrations of the origin and harmful effects of the disease are very effective in bringing about the personal hygiene through which the sources of infection can be minimised. (The above figures are provisional and may finally be modified.)

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\* By Dr. J. H. Waite of the Rockefeller Institute, U.S.A., who has supplied the particulars given, and is conducting a research upon the ravages of the disease and a campaign for its elimination. His report will appear shortly in the "Medical Journal of Australia."

Reference has been made in a previous part of this book (see page 189) to the number of infantile deaths and the rates of infantile mortality in each State, and it will be convenient to here shew corresponding particulars for the year 1917, classified according to metropolitan and other districts in each State:—

### INFANTILE DEATHS AND RATES OF INFANTILE MORTALITY FOR METROPOLITAN AND OTHER DISTRICTS, 1917.

Districts.	N.S.W.	Victoria.	Queensland.	S.A.	W.A.	Tasmania.	C'wealth.
NUMBER OF INFANTILE DEATHS.							
Metropolitan	1,221	1,129	361	326	245	81	3,363
Other ...	1,765	748	705	275	205	200	3,898
RATE OF INFANTILE MORTALITY.*							
Metropolitan	59.12	65.84	63.21	60.13	63.54	60.45	62.13
Other ...	55.51	47.09	50.09	46.58	50.92	49.55	51.48

\* i.e., the number of deaths of infants under one year of age per thousand births.

It may be seen that in each State the rates of mortality are higher in the metropolitan than in other districts. The causes of "preventable" deaths may generally be attributed to milk poisoning, want of knowledge on the part of mothers, inability to nurse, and lack of the necessary medical facilities.

The figures in the foregoing table do not, however, completely represent the hygienic aspect of the question. For every infant death recorded there are probably three or four survivors who have sustained more or less serious permanent physical damage, quite apart from injuries at birth or congenital causes. It is stated that the far-reaching influence of the first year or two of life upon the whole subsequent physical welfare of the individual cannot be recognised too clearly, and it has been alleged that many serious defects and diseases occurring in later life may be credited to results ensuing from infantile disease. This is particularly the case in respect of digestive diseases.

The conditions regulating the employment of boys and girls in shops and factories are referred to in the section of this book dealing with *Industrial Unionism and Industrial Legislation* (Section XXVII.). Certain particulars have also been given in Section XXIV. (pages 902 to 904) of this book regarding Orphanages and Industrial and Reformatory Schools in Australia. In previous issues a short account has been given of the principal Acts which have been passed in each State dealing with the subject of child-life, and of the principal functions of the States' Children's Departments. (See Year Book No. 6, p. 1101.)

## § 8. Medical Inspection of State School Children.

1. **Introduction.**—For many years medical officers of health and many others concerned in education generally have, from time to time, suggested the desirability of a medical inspection of school children. The State, which enforces school attendance under penalties, is also under the obligation of securing a satisfactory hygiene for the child during such attendance. Moreover, efficiency in education demands several things, viz., that the conditions under which the studies are made shall be physically and hygienically satisfactory; that there shall be no undue concentration of nervous effort on school work, and that the child shall be reasonably safeguarded against infection, etc. Only by an adequate scheme of medical supervision can these results be attained. It appears certain, from the results of the work so far undertaken in the several States by the Medical Inspectors, that, had the supervision of the children's health, more particularly with regard to dental and optic defects, been commenced some years previously, the number of rejects by the military authorities since the outbreak of war would have been very materially reduced.

Several limited and isolated surveys of the physical proportions of Australian children have been made during the past 30 years in the various States. The first important systematic survey, however, was made in Sydney in 1901, and the results were reported by the Government Statistician of New South Wales to the Australasian Association for the Advancement of Science Conference in Hobart in 1902, and shewed that the Sydney boy was taller than the English boy, but that his chest expansion was small in comparison with European figures.

A series of measurements on 500 boys took place concurrently but independently in Hobart during 1901, which also gave similar results. It was recognised that the figures were based on limited numbers, but they at least challenged attention. The 1901 survey in Sydney, though small, was a valuable and suggestive contribution to anthropometric research in Australia, and may be regarded as the beginning of a systematic attempt to ascertain what characteristics of bodily form are exhibited in Australia. This enquiry roused considerable interest in the other States, and series of measurements have since been made in Western Australia, Tasmania, and South Australia, by various authorities, and in Victoria by the Education Department's medical officers. Each year since 1907 the Department of Education of New South Wales has carried out regular anthropometric measurements of the height and weight of school children. A card for each child allows his measurements for successive years to be recorded. The department perambulated the apparatus, each set serving about 20 schools, and the visits recur in the same month of each succeeding year. Data for the whole State have now been collected, and it is anticipated that a complete analysis of the results will shortly be published.

**2. Co-ordination of Effort.**—So far as it has been carried out, the medical inspection of school children goes to shew that in Australia, as in other lands, the hygiene, both of the schools and of the pupils therein, is more defective than is ordinarily recognised, and that not only preventable physical injury to the rising generation from school conditions can be avoided, but also instruction itself can be made more efficient by a proper regard to the demands of a good school hygiene. With a view to securing uniformity of procedure in the several States, the Commonwealth Government in 1907 formulated a scheme and communicated with the States asking their co-operation in obtaining measurements of school children with a view to establishing the relations between age, weight and height, chest measurement, etc. Delays occurred from various causes, but in a paper read at the Science Congress in Sydney in 1911, the subject was again brought under notice, and this led to the appointment by the congress of a committee of experts to encourage anthropometric research and to consider the organisation of a systematic survey of school children throughout Australia. The scheme was essentially identical with the former proposal of the Federal Government, but in the interim the report of the British Anthropometric Committee became available, thus making possible a method uniform with that of Great Britain, and making the results immediately comparable with those of Europe.

The Australian Anthropometric Committee drew up a memorandum setting forth the importance and object of the survey, and suggestions as to method for the use of teachers, physical trainers and others interested.

A description of the proposed survey will be found in previous issues of the Year Book (see No. 6, p. 1104).

On the coming into operation of the Defence Act of 1910, military training became compulsory in the Commonwealth, and advantage has been taken of the prescribed medical examination to make a systematic record of the height, weight and chest measurement of each trainee. There can be no doubt that these anthropometric records will in time furnish valuable data for the study of Australian physical development. Further reference is made to this subject in the section dealing with "Defence."

**3. New South Wales.**—In this State, arrangements were made in May, 1907, for the medical inspection of school children in Sydney, and later in the year the work was extended to Newcastle.

In 1913, the scheme of school medical inspection was re-organised so as to embrace every pupil in the State whose parents desired such medical inspection of their children. The employment of part-time medical officers was discontinued, and a staff consisting of a principal medical officer and nine full-time medical officers was appointed. Arrangements were made to provide facilities whereby all school children found physically defective will have an opportunity of being treated by the Department's officers. With the proposed additions, the staff of the medical branch will consist of twenty full-time medical officers, three part-time medical officers, seven full-time and six part-time dentists, besides nurses, dental assistants, and clerks. The work now being carried on by the medical branch may be classified under the following heads:—

(1) The medical inspection of all school children in the State, whether attending public or non-State schools; (2) The investigation of epidemics of infectious diseases affecting school children; (3) Inspection of school buildings; (4) Delivering of systematic courses of lectures at the training college; (5) Delivering lectures to the senior girls in all metropolitan schools on the care of babies, personal cleanliness, home hygiene, sick nursing, etc.; (6) Delivering lectures to parents; (7) The medical examination of candidates for admission to the teaching service; (8) Giving first treatment in the back country schools to the eyes of scholars suffering from ophthalmia, and instructing the children and parents regarding future treatment and prevention; also supplying those children with sufficient drugs to carry on the treatment; (9) Visiting the parents of defective children by nurses to better secure the treatment of those children; (10) Preparation and publication of books, pamphlets, etc., dealing with important aspects of hygiene. Since the reorganization alluded to above, 247,385 children have been examined, and of these, 147,079, or nearly 60 per cent., were found to be suffering from physical defects needing treatment. It is stated that considerably less than half of these received treatment.

During the year 1916, 72,918 children were medically examined, exclusive of the number examined by the Travelling Hospital and Travelling Clinics, referred to hereafter. Of these children, 41,445, or 56.8 per cent., were found suffering from physical defects, and of these, 35,294 were treated, 19,909 being attended to by the Departmental officers, while 15,385 were treated by outside agencies, including hospitals, lodge doctors, private practitioners, and dentists.

During the year 1914 a Travelling Hospital and a Travelling Ophthalmic Clinic were inaugurated, being followed by the Metropolitan Dental Clinic and the Travelling Dental Clinic in 1915. At the end of 1916 the treatment schemes in operation consisted of (1) a Travelling Hospital, staffed by two medical officers, a dentist, and a nurse; (2) six Travelling Dental Clinics, each staffed by a dentist and a dental assistant; (3) a Travelling Ophthalmic Clinic; (4) a Dental Clinic in Sydney, staffed by six half-time dentists and three full-time dental assistants. Provision was made for further extensions, but owing chiefly to the war it was not found possible to obtain suitable officers. The Travelling Hospital works in those parts of the State where there are no resident doctors or dentists. The number of children treated by the Department's treatment schemes during 1916 was as follows:—Travelling Hospital, 2614 children; Travelling Dental Clinic, 10,871 children; Metropolitan Dental Clinic, 3764 children; and Travelling Ophthalmic Clinic, 2660 children, or a total of 19,909.

The Sydney University has established a special course for the training of school medical officers. It is expected that a supply of school medical officers, trained to meet the special requirements, will always be available in the future.

4. **Victoria.**—In Victoria three medical inspectors were appointed by the Education Department at the end of 1909, and a fourth was added in 1915. Owing to war requirements, however, the staff has been reduced to two. Medical inspection in this State now includes (a) Medical examination of pupils in State high schools, higher elementary schools and elementary schools; (b) Medical examination of teachers; (c) Lectures on hygiene to teachers; (d) Reports on school buildings and equipment; (e) Investigations *re* epidemic diseases; (f) Supervision of work of school nurses, bush

nurses, special schools, and of the cleansing and disinfecting of schools. Arrangements have been made to examine children four times during their eight years of school life, beginning with children at their entrance to the infant schools. Complete records are kept of the various measurements made and physical and mental defects noted. Notices regarding defects and advice as to consultation of doctor, oculist, etc., are forwarded to parents. After an interval of six weeks the head teachers inquire as to what course of action parents have pursued, and a further inquiry is made four months later. Prior to the long vacation in December, urgent notice is sent to all parents or guardians of children who need treatment, calling attention to the necessity and importance of having defects remedied. In the metropolitan area the School Nurse visits parents, urges treatment, and makes arrangements for visits to public hospitals of children needing attention. During the year ended 30th June, 1917, 6243 children were examined, of whom 1662 boys and 994 girls attended elementary and special schools, and 1787 boys and 1800 girls attended high schools. Teachers examined numbered 475, all of whom were women.

The appointment of bush nurses has proved a boon in remote localities beyond convenient reach of medical aid.

5. **Queensland.**—In this State a systematic scheme for the inspection of State school children came into operation on 1st January, 1911, under which a Medical Branch of the Department of Public Instruction was created, consisting of a Medical Inspector of Schools, a School Nurse, and a Dental Inspector. To this staff were added an assistant Medical Inspector, an Ophthalmic Inspector, two assistant Dental Inspectors, and three part-time Medical Inspectors. Owing to difficulties resulting from war conditions certain modifications have been rendered necessary. The services of both medical inspectors were requisitioned by the military authorities, and the Ophthalmic Inspector, who volunteered for active service, was killed while on duty in France. During 1916, thirteen part-time medical inspectors were engaged, three of whom were stationed in the Brisbane district and the balance in the chief country centres. Three full-time School Nurses are also employed. While careful attention is given to the ordinary medical examination, special effort is directed to what is known as the "follow-up" scheme. This consists in keeping in close touch with all cases of physical defect until the necessary treatment has been given. In cases where parents are unable to pay for private treatment, arrangements are made to have the children attended to at a hospital.

The staff of Dental Inspectors now consists of a Chief Inspector, two male and three female assistants. At present the principal work undertaken is the inspection of the teeth of pupils between the ages of 6 and 8 years, although special cases brought under notice by head teachers are attended to, and in the smaller schools the whole of the children are dealt with. It is proposed to follow, if possible, all children throughout the period of their school existence, and to take effective action to remove dental defects.

While adenoids and enlarged tonsils appear to be the principal defect throughout all the State schools, the children in the Northern and Western districts suffer largely from defective vision and trachoma. The work of the Ophthalmic Inspector is chiefly confined to these districts. The conclusion has been arrived at, as a result of the examinations, that such climatic conditions as dust, glare, heat, etc., so prevalent in the Western districts, which are often looked upon as the direct cause of serious blight or trachoma, are only predisposing causes, and can be safely ignored, provided elementary precautions are taken. The report of the Dental Inspectors, while still disclosing an appalling percentage of defects in the teeth of the children, shews, even in the short time in which the scheme has been in existence, a marked improvement in the schools that were examined twelve months previously.

6. **South Australia.**—In 1909, at the desire of the Government, Dr. Rogers examined 1000 school-going children in different parts of the State. No children under seven years nor over 15 years of age were examined. Investigations were made with regard to personal appearance, cleanliness, height, weight, chest measurements, teeth, eyesight, hearing, nose and throat, etc., and the report was presented to the Minister for Education in September, 1910, the results being, on the whole, satisfactory. A summary of this

report, which contains statistical details exhibiting many interesting comparisons between various States in the Commonwealth and other parts of the world, was given in a previous issue of this book (see vol. No. 5, pp. 1132 to 1138).

No State medical supervision of its school children was, however, undertaken in South Australia until 1913, when a medical officer, a fully trained nurse, and a health inspector were appointed for the work. Under the system adopted, the children are weighed and measured, their sight and hearing tested, and their chests, throats, and teeth examined. After examination, a notice is sent to the parents of any child who is found defective to an extent likely to interfere with its educational progress. No treatment is undertaken by the State. During the year 1916, 2646 children were examined. Of these, there were 551, or 21.15 per cent., with defects of sight or hearing, or adenoids, sufficiently serious to interfere with their educational progress. In addition, the teeth of 1897 children required attention, 490 having teeth in so bad a condition as to affect their general health. It was found that, while teeth were bad in all the schools examined, the other defects mentioned were exhibited in a considerably greater degree among the city children as compared with those living in country districts.

**7. Western Australia.**—Until the year 1911 no general scheme for school medical inspection existed in Western Australia, although examination in a few metropolitan schools had been intermittently carried on. During the latter part of 1906 and the first half of 1907, an extended examination of about 3300 children was conducted by the Department of State Medicine and Public Health with the co-operation of the Education Department. Many physical defects among the children were detected, and the co-operation of the Inspector-General of Schools resulted in steps being taken, where possible, to provide better hygienic conditions. The system followed during 1909 was that, wherever possible, a visit was made to a school, the teacher bringing up all children who appeared to be suffering from any physical defects or bodily ailments. The exact condition of the child having been determined, a notice was sent to the parents calling attention to the necessity of obtaining treatment for the defect. Under the Health Act 1911, Medical Officers of Health become medical officers of schools and school children. Unfortunately, during 1916, the system of inspection under this Act broke down owing to lack of funds. About 600 children only were examined during the year, and there was no regular officer engaged in the work.

In the Metropolitan District the members of the Dental Society have carried out a regular system of examination of children's teeth. In connection with this, and also in connection with the general system of medical inspection, free treatment is provided for those children whose parents are unable to pay.

**8. Tasmania.**—The credit of being the first State in the Commonwealth to provide for the medical inspection of schools and school children in a systematic way rests with Tasmania, where, under the direction of the Chief Health Officer and the Director of Education, about 1200 children attending schools in Hobart were inspected in 1906.

Medical inspection of school children as now existing in Tasmania is carried out by four medical officers, each controlling respectively one of four areas, which for medical inspection purposes are known as Hobart District, Launceston District, the Southern Country and Northern Country Districts of the State. Additional assistants in the persons of school nurses have been appointed to follow up the work of the Medical Inspectors. Reports on the physical condition of the children are furnished, and parents advised when medical attention is considered necessary, and in the case of parents unable to pay for such attention, orders are given for free treatment at the hospital. The system of medical inspection of school children was extended during 1916 to the pupils of private primary schools, where the teacher makes application for such inspection to be made. Under the scheme in operation, practically all of the primary school children of the State come under medical examination at least once in every two years. The examination in 1916 covered 209 country, State, and private schools, and dealt with 8710 children. During 1916 school dental clinics were established in Hobart and Launceston, and 3282 individual children were examined.

## SECTION XXXI.

## THE COMMONWEALTH SEAT OF GOVERNMENT.

1. **Introductory.**—In Year Books Nos. 4 and 5, information was given in this section as to the events leading to the selection of the Federal Capital Territory, and as to the necessary legislation and the progress of operations in connection with the establishment of the capital city. The physiography of the Territory was dealt with *in extenso*, and topographical and contour maps accompanied the letterpress, as well as reproductions of the premiated designs for the laying out of the city. Considerations of space, however, preclude the repetition of this information. On the 12th March, 1913, the official ceremony to mark the initiation of operations in connection with the establishment of the Seat of Government was carried out. At this ceremony the selection of "Canberra" as the name of the capital city was announced.

2. **Progress of Work.**—The design for the laying out of the capital city having been approved, the survey of the main axial lines has been completed, and the marking on the ground, grading, and construction of portion of the roads are proceeding. Considerable progress has been made with the nursery in connection with the afforestation scheme, and the horticultural work undertaken includes cultivating plants for the Continental Arboretum, red park plantation for Narrabundah, pink park plantation for Mount Ainslie, yellow park plantation for Mount Black, and white forest on Mugga-Mugga, for the extensive redwood, pinetum, cedar, and cork oak economic forests. In addition, the previous pine, wattle, and eucalypt plantations have been maintained, and the propagation of native trees in quantities for parkway embellishment undertaken. The power plant is supplying current to all the important points. Active progress with construction has been restricted for the present, and operations are practically being confined to maintenance works.

The following figures indicate the actual work done in road development since the roads were taken over:—

Forming and finishing ...	...	...	...	93½ miles
Gravelling and metalling ...	...	...	...	95½ miles
Clearing out, repairing culverts, etc.	...	...	...	162½ miles
General road repairs ...	...	...	...	178½ miles
Cutting water tables, drains, etc.	...	...	...	146½ miles

3. **Lands in the Territory.**—As a considerable portion of the Commonwealth lands within the Territory is not required in connection with the establishment of the city, such areas are being made available for leasing under certain conditions. A large number of leases have been disposed of under conditions requiring the extermination of rabbits, and the lessees are proceeding with the erection of rabbit-proof fencing in a satisfactory manner. 13,300 sheep and 220 head of large stock are on agistment on land that will be required for departmental use at a later date. Reference has already been made on page 304 to the area of alienated, acquired and leased land within the Territory. All areas are classified into three classes of agricultural and three classes of grazing lands.

4. **Lands at Jervis Bay.**—Sovereign rights over certain lands, comprising about 18,000 acres, and water, at Jervis Bay, to be used for the Naval College and other Federal purposes, has been granted by the New South Wales Government and accepted by the Commonwealth.

5. **Railways.**—The line from Queanbeyan to Canberra, 4 miles 75 chains long, was opened for goods traffic on 25th May, 1914, and is being worked by the New South Wales Railway Commissioners. The construction of a tramway for the carriage of material from the depot yards and power house into the city area is proceeding. The trial survey of the Canberra-Jervis Bay line has been completed, and plans have been prepared sufficient to enable an estimate of the cost of the line to be arrived at. The trial survey from Canberra to the boundary of the Federal Territory (towards Yass), a distance of 11 miles, has been completed, as well as the survey of the line by the New South Wales Government from Yass to the Territory boundary, 32 miles.

6. **Population and Live Stock.**—A complete count of the population was taken on 31st December, 1917, when a total of 1801 was enumerated. It is estimated that 284 persons were absent from the Territory on the date in question. The live stock in the Territory, according to the latest returns, comprises:—horses, 1300; cattle, 6500; sheep, 150,000; and pigs, 200.

7. **Educational Facilities.**—As the result of a conference between the Administrator of the Territory and the New South Wales Education Department, it is proposed that the latter shall, for the time being, continue the administration of education in the Territory, the expenditure involved to be refunded annually by the Commonwealth to the State. A school has been opened at the Royal Military College, Duntroon. (See also page 844.)

8. **Revenue and Expenditure.**—The expenditure in the Federal Territory subsequent to the passing of the "Seat of Government Acceptance Act 1909," and up to the 30th June, 1918, was for 1910-11 £20,319, 1911-12 £64,772, 1912-13 £135,270, 1913-14 £251,669, 1914-15 £212,506, 1915-16 £166,052, 1916-17 £105,971, 1917-18 £32,111, making a total of £988,670. A detailed statement of the various items of expenditure was received too late to be incorporated herewith and is therefore given in the Appendix.

The revenue of the Federal Territory for the year ended 30th June, 1918, was £31,221, including £754 from rates.

9. **Military College.**—In June, 1911, a Military College was opened at Duntroon for occupation by the cadets and staff. Particulars regarding the establishment of this College may be found in Year Book No. 4 (p. 1159). Previous reference has been made to it in the section of this book dealing with Defence (see page 1017).

10. **Naval College at Jervis Bay.**—See section of this book dealing with Defence, page 1026.



## SECTION XXXII.

## THE NORTHERN TERRITORY.

## § 1. Area and Population.

1. **Introductory.**—Upon the extension of New South Wales westward to the 129th meridian in 1827, the Northern Territory was comprised within that colony (see Year Book No. 4, page 16), and in 1863 was annexed by Royal Letters Patent to the province of South Australia. With the adjacent islands, it was transferred to the Commonwealth on 1st January, 1911.

2. **Area and Boundaries.**—The total area of this Territory is 523,620 square miles, or 335,116,800 acres. Its length from north to south is about 900 miles, while its breadth from east to west is 560 miles. Its eastern boundary, dividing it from Queensland, is the 138th meridian of east longitude; and its western boundary, separating it from Western Australia, the 129th meridian. Its southern boundary is the 26th parallel of south latitude, dividing it from South Australia. The northern boundary is the coast line of those parts of the Indian Ocean known as the Timor and Arafura Seas. Near the mouth of the Wentworth River, in the Gulf of Carpentaria, the coast line is met by the eastern boundary; at Cape Domett, near Cambridge Gulf, the western boundary cuts the northern coast line. The length of coast line is about 1040 miles, or 503 square miles of area to one mile of coast line; an exact survey has, however, not yet been made.

3. **Population.**—(i.) *Character.* In 1881 there were 670 Europeans in the Territory, and at the end of 1913 the number was estimated at 2143. The Chinese population, at its maximum during the years of railway construction, 1887 and 1888, has gradually dwindled, the estimate for 1914 being 1033. Japanese, first recorded in 1884, increased up to the year 1898, falling again after five years. The highest recorded population, excluding aborigines, was 7533 in 1888; the estimate for 1917 was 4908. The year 1911 was the first in which the population was dominated by the European race. A thirty years table of population, distinguishing races, will be found on page 1156 of the Commonwealth Official Year Book No. 5. Subsequent to the Census of 1911, a revision of the estimates, back to 1901, was made. The results are incorporated in the following table:—

## POPULATION OF NORTHERN TERRITORY (EXCLUSIVE OF ABORIGINES), 1901 to 1917.

Year ended 31st December.	Male.	Female.	Total.	Year ended 31st December.	Male.	Female.	Total.
1901 ...	3,999	674	4,673	1910 ...	2,738	563	3,301
1902 ...	3,847	627	4,474	1911 ...	2,662	586	3,248
1903 ...	3,582	652	4,234	1912 ...	2,854	621	3,475
1904 ...	3,514	692	4,206	1913 ...	2,995	677	3,672
1905 ...	3,368	678	4,046	1914 ...	3,252	721	3,973
1906 ...	3,248	656	3,904	1915 ...	3,687	876	4,563
1907 ...	3,095	642	3,737	1916 ...	3,839	928	4,767
1908 ...	2,963	609	3,572	1917 ...	3,886	1,022	4,908
1909 ...	2,927	576	3,503				

The census population (3rd April, 1911) was 2734 males, 576 females; total, 3310. The estimate for 31st December, 1917, gives 3886 males, 1022 females, a total of 4908.

(ii.) *Movement of Population.* The following is a summary of movement of population in 1917 (excluding overland migration):—

**MOVEMENT OF POPULATION, NORTHERN TERRITORY, 1917.**

Europeans—		Europeans—		Excess of immigration over emigration	
Inwards ...	1,410	Outwards ...	1,156	Europeans ...	254
Births ...	59	Deaths ...	39	Others ...	(-)119
Others—		Others—		Excess of births over deaths	
Inwards ...	91	Outwards ...	210	Europeans ...	20
Births ...	10	Deaths ...	24	Others ...	(-)14
Increase ...	1,570	Decrease ...	1,429	Net gain ...	141

Note (—) signifies decrease.

The immigration and emigration of the Territory in five-year periods from 1881 to 1910, and for each of the years 1911 to 1917, are shewn in the following table:—

**MIGRATION, NORTHERN TERRITORY, 1881 to 1917.**

Year.	Immigration.	Emigration.	Year.	Immigration.	Emigration.	Year.	Immigration.	Emigration.
1881-5	3,683	3,787	1901-5	2,211	2,932	1914	1,102	778
1886-90	9,208	7,250	1906-10	2,559	3,125	1915	1,904	1,278
1891-5	1,958	2,353	1911	412	431	1916	1,389	1,137
1896-1900	2,538	2,259	1912	846	585	1917	1,501	1,366
			1913	1,033	824			

(iii.) *The Aborigines.* An account of the Australian aborigines, by Dr. W. Ramsay-Smith, was given in Year Book No. 3 (pp. 158-176). The interior of the continent is the most thickly populated by the natives, but it is believed that they are rapidly dying out. In these regions, remote from contact with other races, the native has maintained his primitive simplicity, and furnishes an interesting subject of study to the anthropologist and ethnologist. At the census of 1911, full-blooded aboriginals in the employ of whites, and those who were living in a civilised or semi-civilised condition in the vicinity of European settlements, were enumerated—the males being 743, females 480; total, 1223. Estimates of the total black population of the Territory vary from 20,000 to 50,000.

**§ 2. Legislation and Administration.**

1. *Transfer to Commonwealth.*—(i.) *The Northern Territory Acceptance Act.* A short historical sketch is given in Year Book No. 6, pp. 1113-4. On 1st January, 1911, the Territory was transferred by South Australia to the Commonwealth, upon terms previously agreed upon by the respective cabinets, and ratified by the Commonwealth *Northern Territory Acceptance Act* (No. 20 of 1910). It is enacted that laws and courts of justice remain in operation, powers and functions of magistrates and officials remain vested; estates and interests continue upon the same terms; trade with Australian States is declared free. The Commonwealth assumes responsibility for the State loans in respect of the Territory, paying the interest yearly to the State, providing a sinking fund to pay off the loans at maturity, and paying off the deficit in respect of the Territory. It also purchases the Port Augusta to Oodnadatta railway, and agrees to complete the construction of the transcontinental railway from Port Darwin to Port Augusta.

(ii.) *The South Australian Surrender Act.* The State Act approves and ratifies the agreement surrendering the Territory.

(iii.) *The Northern Territory (Administration) Act 1910.* The Act provides for Government authorising the appointment of an Administrator and officials. South Australian laws are declared to continue in force as laws of the Territory, and certain Commonwealth Acts to apply. Power is given to the Governor-General to make Ordinances having the force of law.

(iv.) *Administration.* A Resident Administrator, vested with supreme authority in internal affairs, was appointed in the Department of the Minister for External Affairs in February, 1912. Many other important administrative offices have also been filled.

(v.) *Legislation.* The main provisions of the Ordinances passed are as follows:—The powers and duties of the Administrator vested in the appointee, include custody of the public seal, appointment and suspension of officials, and execution of leases of crown lands. A Supreme Court with original and appellate jurisdiction is instituted, the method of appointment of the Judge is prescribed, and provision is made for trial by jury, and for the registration and summoning of jurors. A Sheriff, a Registrar-General, and a Health Officer are provided for, also the registration of births, marriages and deaths, and of deeds and documents. Custody and control of aborigines, with extensive powers of supervision, are vested in the Chief Protector. Provision is made for the control of fisheries. Birds protected during the whole or part of the year are scheduled. Crown lands are classified, and their mode of acquisition, entry and holding defined. Shop assistants are to have a weekly half-holiday, and the establishments must be closed at a certain time. A town council has been constituted for Darwin, and provision made for assessments, rates, etc. Mining is encouraged by the provision of rewards for the invention of new processes, and the discovery of valuable deposits and of new mineral fields; subsidisation of the industry and the issue of prospecting licenses are also provided for. Licenses to search for mineral oil, and leases for working, are available. A Board is constituted for the purpose of making advances to settlers who intend to improve and stock their holdings, to purchase farm implements, plant, etc., or to pay off mortgages, the rate of interest and terms of repayment being set out. Reference to the Liquor Ordinance will be found hereunder.

(vi.) *Liquor Traffic.* By the Liquor Ordinance of 1915, the Commonwealth Government assumed the control of the importation, manufacture, and sale of liquor in the Territory. The hotels in Darwin and Pine Creek have been taken over, and a supervisor of hotels has been appointed to oversee the liquor business generally. Extensive additions and improvements to the hotels have been effected. A good profit has been made as far as the sale of liquor is concerned, but the board and lodging part of the catering has shewn a considerable loss.

(vii.) *Schedule of Ordinances.* A schedule of the ordinances promulgated up to the end of 1917 is given hereunder:—

1911.—1, Northern Territory Government; 2, Council of Advice; 3, Sheriff; 4, Tin Dredging; 5, Marine; 6, Registration of Births, Marriages, and Deaths; 7, Interpretation; 8, Stamp Duties Abolition; 9, Supreme Court; 10, Registration; 11, District Council Assessment; 12, Registration; 13, Fisheries; 14, Lands Acquisition; 15, Interpretation; 16, Aborigines.

1912.—1, Native Birds Protection; 2, District Council Assessment; 3, Crown Lands; 4, Supreme Court; 5, Health; 6, Thorngate Estate; 7, Jury; 8, Crown Lands; 9, Early Closing.

- 1913.—1, Mineral Oil; 2, Birds Protection; 3, Registration of Births; 4, Encouragement of Mining; 5, Advances to Settlers; 6, Public Service; 7, Crown Lands; 8, Marriage Validating.
- 1914.—1, Brands; 2, Crown Lands.
- 1915.—1, Licensing; 2, Birds Protection; 3, Roads; 4, District Council; 5, Health; 6, District Council Amendment; 7, Darwin Town Council; 8, Liquor.
- 1916.—1, Liquor Amendment; 2, Eradication of Noxious Weeds.
- 1917.—1, Crown Lands Amendment; 2, Darwin Town Council Amendment; 3, Marriage; 4, Appointment of Acting Administrator; 5, Education; 6, Crown Lands Amendment; 7, Prevention and Eradication of Diseases in Plants; 8, Liquor Amendment; 9, Stamp; 10, Darwin Pound; 11, Crown Lands Amendment.

### § 3. Physiography.

1. **Tropical Nature of the Country.**—The Territory is within the torrid zone, with the exception of a strip  $2\frac{1}{2}$  degrees wide, which lies south of the Tropic of Capricorn.

2. **Contour and Physical Characteristics.**—The low flat coast line seldom reaches a height of 100 feet. Sandy beaches and mud flats, thickly fringed with mangroves, prevail. Sandstone, marl, and ironstone form the occasional cliffy headlands. The sea frontage of more than 1000 miles is indented by bays and inlets and intersected by numerous rivers, many of which are navigable for considerable distances from their estuaries.

The principal features of the coast line are enumerated in Year Book No. 1, p. 66; the rivers in Year Book No. 2, p. 76; the mountains in Year Book No. 3, p. 67; the lakes in Year Book No. 4, p. 77; the islands in Year Book No. 5, pp. 71, 72, and the mineral springs in Year Book No. 6, p. 65.

Inland, the country generally is destitute of conspicuous landmarks. From the coast there is a general rise southwards to the vicinity of the 17th or 18th parallel of south latitude, where the higher lands form the watershed between the rivers that flow northwards to the sea, and those that form the scanty supply of the interior systems. Towards the centre of the continent, the land over a wide area is of considerable elevation, and there are several mountain ranges, generally with an east and west trend.

### § 4. Climate, Fauna and Flora.

1. **The Seasons.**—There are two main climatic divisions—the wet season, November to April, and the dry season, May to October, with uniform and regular changes of season. Nearly the whole of the rainfall occurs in the summer months. Fuller particulars will be found in Year Book No. 6, p. 1116.

2. **Fauna.**—The ordinary types of native Australian fauna inhabit the territory. As elsewhere on the continent, the higher *Theria* are rare, but marsupials, birds, crocodiles, fresh-water tortoises, snakes (mostly non-venomous), and frogs abound. There are many varieties of freshwater fish and littoral mollusca. Butterflies and beetles are strongly represented. The white ant is a pest, anthills in the Territory sometimes attaining great dimensions. Mosquitoes and sandflies are very troublesome, particularly in the wet season. Native fauna are in some cases protected. The domesticated animals have been introduced, and buffalo also exist in large herds.

3. **Flora.**—The vegetation is North Australian in type, but a number of the forms belong to the Malayan and Oceanic regions. The timber trees are not of great commercial value, but in the coastal regions tropical vegetation grows luxuriantly to the water's

edge. On the wide expanses of plain country of the interior, there is little vegetation. The principal orders represented in the Territory are:—*Euphorbiaceæ*, *Compositæ*, *Convolvulaceæ*, *Rubiaceæ*, *Goodenoviaceæ*, *Leguminosæ*, *Urticææ*.

Fuller particulars regarding fauna and flora are given in Year Book No. 6, pp. 1116-7.

## § 5. Production.

1. **Agriculture.**—Up to the present, agriculture has made little progress in the Territory, although it has been demonstrated that rice may be grown as an ordinary crop suitable for chaff as fodder, and in certain situations for milling; while maize, cowpeas, sorghum, amercane, millets of various kinds, and sugar-cane can also be cultivated. The drawbacks to success at the present are lack of suitable labour, and deficient means of communication. Purely tropical products such as cotton, tea, coffee, sisal hemp and cigar tobacco can also flourish, but their profitable cultivation depends on a supply of cheap labour, which is unobtainable. The Commonwealth Government has established demonstration farms at Daly River and Batchelor.

2. **Stock.**—(i.) The spacious, well-grassed “runs” of the Territory are, with adequate water supply, suitable for horse and cattle breeding. Large numbers of cattle are overlanded to neighbouring States, which also take considerable quantities of horse hides. The Government has a small experimental sheep station at Mataranka on the head waters of the Roper River, the flock consisting of about 2700 merino sheep. The total area fenced in with dingo and marsupial proof fencing is about 8000 acres, including two small home paddocks. The fencing of a large horse and cattle paddock comprising about 45 square miles is nearing completion. The total area of the Mataranka Station is about 770 square miles. The estimated number of stock in the Territory on 31st December, 1916, is given in the appended statement:—

### LIVE STOCK, NORTHERN TERRITORY, 31st DECEMBER, 1916.

Horses.		Cattle.		Sheep.		Pigs.
21,674	...	420,362	...	47,520	...	500

The dairying industry has not been developed, although it has been shewn that it is possible to make butter of good quality. Fresh milk is procurable in Darwin from the Government dairy, which was leased to a private supplier in 1914. It is found that the rank indigenous grasses in some localities are greatly improved by constant stocking, and become largely replaced by shorter and sweeter varieties.

Herd of wild buffaloes are found on the mainland and on Melville Island, and are descendants of swamp buffaloes, introduced in the early part of last century. They have no value beyond that of their hides, of which large quantities are exported annually.

(ii.) **Meat Preserving Works.** Extensive Meat Preserving works capable of dealing with all the stock available for export have been established in the vicinity of Darwin. Although the works are privately owned, the Government has arranged reasonable terms under which the proprietors have agreed to treat with stock owners. The works commenced operations in April, 1917. For further information see section XIII. §8, 12, page 519.

3. **Mining.**—Small quantities of the precious and commercial metals are mined. The discovery of gold and tin in various localities, and the measure of success that has attended their working, indicate scope for development. An important discovery of tin at Maranboy Springs was made in 1913, and this field is now the most productive in the Territory; up to 30th June, 1916, 1690 tons have been obtained, producing 84 tons of concentrates, this being an average of 4.79 per cent. tin oxide.

(i.) **Mineral Production.** Both alluvial and reef gold are found, and there are several batteries and cyanide plants. Other minerals are also raised. The following table shews the total mineral production for the last five years:—

## VALUE OF MINERAL PRODUCTION, NORTHERN TERRITORY, 1912 to 1916.

Year.	Gold.	Tin Ore.	Wolfram.	Silver Lead Ore.	Copper Ore.	Total Value.
	£	£	£	£	£	£
1912 ... ..	22,671	27,001	3,330	820	3,998	57,820
1913 ... ..	13,250	25,526	3,140	2,228	482	44,626
1914 ... ..	10,757	15,200	4,025	545	4,860	35,807*
1915 ... ..	4,182	13,245	5,278	1,073	10,710	34,498†
1916 ... ..	2,554	27,120	20,269	275	5,517	55,780‡

\* Includes mica valued at £420. † Molybdenite, £10. ‡ Molybdenite, £45.

(ii.) *Employment of Miners, 1911 to 1915-16.* The following table shows the average number employed in mining during the last five years, distinguishing Chinese:—

## MINERS, NORTHERN TERRITORY, 1911 to 1915-16.

Year.	Europeans.	Chinese.	Total.
1911 ... ..	101	575	676
1912 ... ..	84	542	626
1913 ... ..	90	530	620
1914 ... ..	136	462	598
1915-16 ... ..	112	364	476

(iii.) *Mining Accidents, 1900 to 1916.* In 1911 five mining accidents were recorded, four resulting in death. There were no serious accidents in 1910, 1912, and 1913, and only one, resulting in death, in 1914, and one in each of the years 1915 and 1916. During the nine years preceding (1901-1909), nine fatal accidents and seven cases of serious injury were recorded. The majority of the victims were Chinese.

4. *Pearl Fishing.*—In 1884 mother-of-pearl shell was discovered in the harbour of Port Darwin. Difficulty in working, principally through heavy tides and muddy water, retarded the development of the industry for many years. Latterly, however, the opening up of new patches led to a revival, but the outbreak of war has given the industry a setback for a time. The latest figures available are for 1915, in that year, 25 boats were engaged, valued, with their equipment, at about £6250; 150 men were employed. Forty-two tons of pearl shell were obtained, valued at £6135. The value of pearls produced was not stated. About 100 lbs. of tortoise-shell, valued at £50, and bêche-de-mer, valued at £160, were also raised. The above figures give only a partial view of the value of the fishing industry, as large quantities of pearlshell and bêche-de-mer are sent away unrecorded.

## § 6. Commerce and Shipping.

1. *Trade.*—The following table shows the total trade of the Territory for 10 years from 1901 to 1910:—

## VALUE OF TOTAL IMPORTS AND EXPORTS, NORTHERN TERRITORY, 1901 to 1910.

Items.	1901.	1902.	1903.	1904.	1905.	1906.	1907.	1908.	1909.	1910.
	£	£	£	£	£	£	£	£	£	£
Imports ... ..	108,686	107,217	125,244	113,461	86,878	74,659	78,996	68,905	57,994	52,398
Exports ... ..	302,931	191,558	178,266	235,650	216,279	254,222	345,721	241,023	278,555	269,063
Total Trade	411,617	298,775	303,510	349,111	303,157	328,881	424,717	309,933	336,549	321,461

No record is now kept of the direction of trade between the Commonwealth States and Territories. It is, therefore, impossible to give the total imports and exports of the Northern Territory for years later than 1910. The value of the direct oversea trade for 1901, and for each of the years 1911 to 1916-17 is given hereunder :—

**VALUE OF DIRECT OVERSEA TRADE, NORTHERN TERRITORY,  
1901 and 1912 to 1916-17.**

Items.	1901.	1912.	1913.	1914-15.	1915-16.	1916-17.
	£	£	£	£	£	£
Imports ...	37,539	18,130	20,977	83,708	74,424	82,775
Exports ...	29,191	59,106	67,911	13,319	20,953	13,251
Total ...	66,730	77,236	88,888	97,027	95,377	96,026

The principal items of oversea export in 1916-17 were tin, £11,447, and dried fish £1346.

2. **Shipping.**—The Territory's oversea commerce is carried chiefly in British bottoms, but the Royal Dutch Packet Co. steamers now call monthly. One of the British lines maintains a monthly service, others are irregular. The following table shews the shipping of the Territory :—

**SHIPPING, NORTHERN TERRITORY, 1881 to 1916-17.**

Period.	Arrivals.		Departures.	
	No. of Vessels.	Tonnage.	No. of Vessels.	Tonnage.
1881—1885 (Annual Average)	72	71,814	72	71,692
1886—1890	95	94,452	103	94,724
1891—1895	75	81,128	73	81,090
1896—1900	71	88,284	70	88,244
1901—1905	63	93,751	63	91,556
1906—1910	87	128,502	86	128,408
1911 ...	71	130,178	71	130,178
1912 ...	74	138,052	74	138,052
1913 ...	83	171,504	84	171,594
1914-15 ...	82	173,943	81	172,482
1915-16 ...	91	208,441	91	208,441
1916-17 ...	70	161,636	68	161,313

## § 7. Internal Communication.

1. **Railways.**—Under the agreement ratified by the Act, the Commonwealth is to construct the Northern Territory portion of the transcontinental railway line (connecting Adelaide and Darwin, *via* Port Augusta).

The Northern line from Adelaide terminates at Oodnadatta, about 100 miles south of the southern boundary of the Territory. The only line at present in the Territory is one from Darwin to Katherine, a length of 200 miles, of 3 ft. 6 in. gauge. The line to connect Katherine River with Oodnadatta (about 1010 miles) is in course of survey, the work having been completed as far south as Daly Waters Telegraph Station. It is stated that this transcontinental railway would bring London within seventeen days of Adelaide. The Commonwealth also acquired on 1st January, 1911, the property in the line from Port Augusta to Oodnadatta (478 miles).

2. **Posts.**—The principal mail services are as follows:—

(i.) *Marine.* Postal communication is maintained between Sydney, Melbourne, and Adelaide, *via* North Queensland ports. The service extends to China and Japan. There is also a regular service between Darwin and Boroloola by Government auxiliary vessel, calling at Roper River; and a service every two months between Darwin and Wyndham, on the estuary of Ord River, in the north-east of Western Australia, by the Western Australian Government steamers.

(ii.) *Inland.* Posts are also despatched into the interior of the Continent. One route is from the Katherine Telegraph Station southwards as far as Alice Springs; others are from Katherine to Boroloola, from Camooweal to Boroloola, from Katherine to Victoria River and Wave Hill, and from Oodnadatta to Alice Springs.

3. **Telegraphs.**—The transcontinental telegraph line, covering a length of 2230 miles, was completed on 2nd August, 1872, at a cost of nearly half-a-million sterling. The line runs in a northerly direction from Adelaide to Darwin, whence telegraphic communication is provided with Asia and Europe, *via* Banjoewangie (Java), Singapore, and Madras.

Between Darwin and Banjoewangie the submarine cable is duplicated.

## § 8. Finance.

1. **Revenue and Expenditure, 1916-17.**—In the Commonwealth finance statement for 1916-17, separate accounts are given for Northern Territory administration. The following shews the receipts and expenditure for the financial year named:—

### REVENUE AND EXPENDITURE, NORTHERN TERRITORY, 1916-17.

REVENUE.	£	EXPENDITURE (CHIEF ITEMS.—cont.	£
Customs and Excise... ..	19,156	Port Augusta Railway Loans (Interest, etc.) ... ..	77,436
Postal, Telegraph & Telephone	8,160	Interest on South Australian Rolling Stock ... ..	5,720
Railways ... ..	32,605	New Works ... ..	171,349
Territorial ... ..	18,617	Railways and Transport—Salaries, etc. ... ..	61,016
Land and Income Tax ... ..	10,788	Gold Fields and Mining—Salaries, etc. ... ..	31,837
Miscellaneous ... ..	11,245	Land and Surveys—Salaries, etc. ... ..	10,988
Quarantine ... ..	21	Loss on Railway Working ... ..	30,551
Lighthouses and Light Dues...	1,009	Postal Department... ..	19,437
Port Augusta - Oodnadatta Railway ... ..	1,379	Interest and Sinking Fund on Stock and Treasury Bills in aid of Loans and Railways	56,041
Deficiency on year's transactions	702,385	Redemption of Loans ... ..	137,128
	805,365	Miscellaneous ... ..	15,417
		Total ... ..	805,365
EXPENDITURE (CHIEF ITEMS).	£		
Northern Territory Loans (excluding Port Augusta Railway) ... ..	119,215		
Administrator's Office ... ..	69,230		

2. **Loans.**—The first loan on Northern Territory account was floated in London in 1876; the nominal amount was £75,000, at 4 per cent., due date 1st January, 1916. The public debt on 30th June, 1917, was £2,772,516. The following is a summary:—



## PUBLIC DEBT, NORTHERN TERRITORY, 30th JUNE, 1917.

Principal. £		Rate. %		Annual Interest. £
27,216	...	3	...	816
154,992	...	3½	...	5,425
1,394,008	...	3½	...	52,275
1,196,300	...	4	...	47,852
Total ... 2,772,516	...	—	...	106,368

## § 9. Land Tenure.

1. **Present Policy.**—A description of the system of land settlement in force in the Territory will be found in the chapter "Land Tenure and Settlement," see pages 270, 271 *supra*. Prior to the transfer of the Territory to the Commonwealth on 1st January, 1911, the sale and occupation of lands were regulated by the South Australian Legislature in Statutes applying particularly to the Territory. Under the Commonwealth Government, a complete reorganisation was effected, and the system adopted was embodied in the Crown Lands Ordinances of 1912, 1913, and 1914. A leasehold system only is provided for, and no further alienation of Crown lands is permitted, except in pursuance of existing agreements. The land is classified and appraised, and leased in blocks, the maximum areas ranging from 300 square miles of first class pastoral, to 1280 acres of first class agricultural land. The terms of pastoral leases are for Class 1, 21 years; Classes 2 and 3, 42 years; and for any miscellaneous lease, 21 years. All other leases are to be in perpetuity, making them almost equivalent to freeholds, but with re-appraisal of rent values every 14 years in the case of town lands, and every 21 years in the case of agricultural and pastoral lands. The conditions are of a very favourable nature, with low rents and elastic conditions of tenure. In order to provide for cases where allottees on inspection of their blocks have reasonable grounds for preferring another block, the Administrator is empowered to revoke leases, under certain conditions. Under the Advances to Settlers Ordinance 1913, provision was made for giving settlers financial assistance in the pioneering years. Repayment of loans can be extended over a period of 30 years. Owing to the high evaporation rate, the surface waters in the Territory dwindle rapidly during the dry season, and, except in favoured localities, sub-artesian supplies must be resorted to where obtainable. In order to encourage the provision of water supply, it is proposed, in granting leases, to allow minimum rentals in the case of lessees who make satisfactory provision by means of bores, wells, or dams.

2. **Number of Holdings.**—The table on page 271 *supra* shews the total area under lease, license, and permit in 1901 and in each year from 1912 to 1916. At the end of 1916 there were in existence, under South Australian Acts, 234 pastoral leases covering 64,682,880 acres, and 80 pastoral permits covering 12,072,370 acres. Under the Crown Lands Ordinance of 1912, there were 124 grazing licenses covering 24,605,440 acres, and 51 pastoral leases covering 9,136,129 acres.

## SECTION XXXIII.

## LABOUR AND INDUSTRIAL STATISTICS.

## § 1. Introductory.

1. **General.**—In Year Book No. 7 (pages 992-3), a *résumé* was given of the functions and scope of the Labour and Industrial Branch of the Commonwealth Bureau of Census and Statistics. Owing to considerations of space, that information is not repeated in the present issue of the Year Book.

## § 2. Fluctuations in Employment and Unemployment.

1. **General.**—In Australia, but few of the trade unions pay any form of unemployment benefit, and consequently accurate and complete records of unemployment are difficult to obtain. For that reason the investigation for past years was advisedly limited to a record of the numbers unemployed at the end of each year. The results are, therefore, subject to certain limitations, inasmuch as they do not take into account variations in employment and unemployment throughout the year due to seasonal activity and other causes.

For the above reasons it is not safe to conclude that the actual percentage returned as unemployed in past years by trade unions at the end of each year is equal to the average percentage unemployed during the year. Nevertheless, for the purpose of making comparisons and shewing tendencies over a period of years, the percentages returned as unemployed, though not exact, are the most satisfactory figures available, and the average percentages and index-numbers computed for the several States and groups of unions may be taken as denoting the true course of events with substantial accuracy.

It may be mentioned that, in order to overcome the difficulties alluded to in regard to seasonal fluctuations, returns as to numbers unemployed have been collected from trade unions for each quarter since the beginning of the year 1913.

2. **Number Unemployed in Various Industries, 1891 to 1917.**—The following table shews for each of the years specified :—

- (a) The number of unions for which returns as to unemployment are available.
- (b) The number of members of such unions.
- (c) The number of members unemployed, and
- (d) The percentage of members unemployed on the total number of members of those unions for which returns are available.

The information given in this table obviously does not furnish a complete register of unemployment. In the first place, with the exception of the years 1913 to 1917 it relates only to the number unemployed at the end of the year (see preceding paragraph hereof), and, secondly, it does not cover more than a part of the industrial field. Attention should here be drawn to the fact that the value of the comparisons which can be made is, to some extent, vitiated by the fact that returns are not available for the same unions throughout. For most of the important industries, returns have been available for a considerable number of unions and members since 1912. It is not unlikely, however, that particulars of unemployment are, on the whole, more generally available for those trades in which liability to unemployment is above the average

of skilled occupations. Thus the building and engineering industries are heavily represented in the returns, while such comparatively stable industries as railway service are hardly represented at all. On the other hand, unskilled casual labour cannot, in the nature of the case, be well represented in the returns, which relate mainly to skilled workmen.

Thus, for some reasons, the percentage given is likely to be greater, and for other reasons, less than the true average percentage unemployed throughout the country.

**UNEMPLOYMENT.—NUMBER OF UNIONS AND MEMBERS REPORTING AND NUMBER AND PERCENTAGE UNEMPLOYED, 1891 to 1917 (4th QUARTER).**

Particulars.					Unions.	Membership.	Unemployed.	
							Number.	Percentage.
1891	...	...	...	...	25	6,445	599	9.3
1896	...	...	...	...	25	4,227	457	10.8
1901	...	...	...	...	39	8,710	574	6.6
1906	...	...	...	...	47	11,299	753	6.7
1907	...	...	...	...	51	13,179	757	5.7
1908	...	...	...	...	68	18,685	1,117	6.0
1909	...	...	...	...	84	21,122	1,223	5.8
1910	...	...	...	...	109	32,995	1,857	5.6
1911	...	...	...	...	160	67,961	3,171	4.7
1912	...	...	...	...	464	224,023	12,441	5.5
1913, 1st Quarter*	...	...	...	...	451	237,216	15,234	6.4
2nd	...	...	...	...	458	243,523	17,854	7.3
3rd	...	...	...	...	472	252,325	17,698	7.0
4th	...	...	...	...	465	251,207	13,430	5.3
1914, 1st	...	...	...	...	462	262,133	15,541	5.9
2nd	...	...	...	...	467	279,318	15,856	5.7
3rd	...	...	...	...	466	283,584	30,367	10.7
4th	...	...	...	...	439	250,716	27,610	11.0
1915, 1st	...	...	...	...	476	279,388	33,465	12.0
2nd	...	...	...	...	456	273,190	26,015	9.5
3rd	...	...	...	...	484	279,133	24,682	8.8
4th	...	...	...	...	465	273,149	18,489	6.8
1916, 1st	...	...	...	...	475	291,525	17,178	5.9
2nd	...	...	...	...	476	298,675	15,741	5.3
3rd	...	...	...	...	472	278,047	14,649	5.3
4th	...	...	...	...	470	292,051	19,562	6.7
1917, 1st	...	...	...	...	455	290,849	21,892	7.5
2nd	...	...	...	...	453	303,507	19,257	6.3
3rd	...	...	...	...	432	255,949	18,197	7.1
4th	...	...	...	...	459	296,937	21,989	7.4

\* For years prior to 1913 the figures refer to the end of the year only, and not to separate quarters. The quarterly figures shew the number of persons who were out of work for three days or more during a specified week in each quarter; they do not include persons out of work through strikes or lockouts.

The figures shew that the percentage of unemployment was higher in the fourth than in the third quarter of the current year, and also higher than in the corresponding quarter of last year.

**3. Unemployment in Different Industries, 1917.**—The following table shews the percentages unemployed in several of the fourteen industrial groups. It may be observed that for those industries in which unemployment is either unusually stable or, on the other hand, exceptionally casual, information as to unemployment cannot ordinarily be obtained from trade unions. Hence, certain industries such as railways, shipping,

agricultural, pastoral, etc., and domestic, hotels, etc., are insufficiently represented in the returns. Particulars are not, therefore, shewn separately for these groups, such returns as are available being included in the last group, "Other and Miscellaneous."

### UNEMPLOYMENT IN DIFFERENT INDUSTRIES AT THE END OF YEAR 1917.

Industrial Group.	Number Reporting.		Unemployed.	
	Unions.	Members.	Number.	Percentage.
I. Wood, Furniture, etc. ...	19	14,833	1,496	10.1
II. Engineering, Metal Works, etc.	57	35,514	3,969	11.2
III. Food, Drink, Tobacco, etc. ...	60	23,473	2,280	9.7
IV. Clothing, Hats, Boots, etc. ...	23	27,054	1,141	4.2
V. Books, Printing, etc. ...	27	10,173	281	2.8
VI. Other Manufacturing...	69	24,431	1,954	8.0
VII. Building ...	56	30,754	2,539	8.3
VIII. Mining, Quarrying, etc. ...	21	30,210	2,232	7.4
X. Other Land Transport ...	16	9,773	255	2.6
IX., XI., XII., XIII. and XIV., Other and Miscellaneous ...	111	90,722	5,842	6.4
All Groups ...	459	296,937	21,989	7.4

4. **Unemployment in each State, 1917.**—Any deductions which can be drawn from the data collected as to the relative degree of unemployment in the several States are subject to certain qualifications (in addition to those already stated on page 1089), inasmuch as the industries included in the trade union returns are not uniform for each State. In comparing the results for the individual States, it must therefore be borne in mind that, to some extent at least, comparisons are being drawn between different industries and not only between different States. Nevertheless, since the industrial occupations of the people vary considerably in the several States, all comparisons between the States based on comprehensive data as to unemployment must, to some extent, suffer from the defect indicated.

### UNEMPLOYMENT IN DIFFERENT STATES AT THE END OF YEAR 1917.

State.	Number Reporting.		Unemployed.	
	Unions.	Members.	Number.	Percentage.
New South Wales ...	136	135,141	8,706	6.4
Victoria ...	100	82,186	8,751	10.6
Queensland ...	56	40,996	3,068	7.5
South Australia ...	50	16,425	434	2.6
Western Australia ...	77	17,333	892	5.1
Tasmania ...	40	4,856	138	2.8
Commonwealth...	459	296,937	21,989	7.4

### § 3. Variations in Nominal and Effective Wages.

1. **Variations in Wage Index-Numbers in Various Industries, 1901 to 1917.**—The total number of different occupations for which particulars as to wages are available back to 1891 is 652. In 1913 the number of occupations was increased to 3948. These wages relate generally to award rates, but in a few cases, more especially for the earlier years, when there were no award rates fixed, predominant or most frequent rates have been taken. The occupations have been distributed over the fourteen industrial groups already specified, and index-numbers computed for each group for the whole Commonwealth. The wages refer generally to the capital town of each State, but in industries such as mining and agriculture, the rates in the more important industrial centres have been taken.

The following table shews wage index-numbers for the whole Commonwealth in each of the fourteen industrial groups during the years specified. Rates of wages for females are not included. The index-numbers are "weighted" according to the number of persons engaged in different industrial groups in each State and the Commonwealth (see Report No. 8, page 67). In the tables of index-numbers given in this Section, the weighted average wage in 1911 for all States or industries, as the case may be, is taken as base (= 1000). The result is that the index-numbers are comparable in all respects, that is to say, they shew not only the variations in wages from year to year in each State or industrial group, but they also furnish comparisons as to the relative wages in each State or industry, either in any particular year, or as between one year and another, and one State or industry and another.

#### VARIATIONS IN NOMINAL WAGE INDEX-NUMBERS IN DIFFERENT INDUSTRIES IN THE COMMONWEALTH, 1901 to 1917. (WEIGHTED AVERAGE FOR ALL GROUPS IN 1911 = 1000).

Particulars.	No. of Occupations included.		1901.	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.
	1901 to 1912.	1913 to 1917.											
I. Wood, Furniture, etc.	27	270	1,019	1,051	1,055	1,097	1,125	1,144	1,142	1,161	1,174	1,245	1,288
II. Engineering, Metal Works, etc.	101	636	945	989	995	1,006	1,064	1,104	1,113	1,127	1,174	1,211	1,268
III. Food, Drink, etc.	34	576	871	905	914	928	991	1,038	1,074	1,085	1,127	1,194	1,241
IV. Cloth'g, Hats, Boots, etc.	13	124	708	867	935	976	981	990	1,019	1,034	1,037	1,104	1,163
V. Books, Printing, etc.	25	205	996	1,021	1,070	1,102	1,149	1,188	1,234	1,246	1,259	1,328	1,376
VI. Other Manufactur'g	102	875	907	915	923	947	1,013	1,037	1,076	1,093	1,125	1,203	1,245
VII. Building	67	190	1,050	1,114	1,130	1,163	1,213	1,245	1,270	1,276	1,285	1,359	1,413
VIII. Mining, Quarries, etc.	71	161	1,067	1,116	1,120	1,168	1,194	1,216	1,270	1,272	1,299	1,420	1,528
IX. Rail & Tram Services	68	224	1,021	1,031	1,064	1,074	1,113	1,164	1,165	1,165	1,187	1,236	1,286
X. Other Land Transp't	9	70	795	836	836	889	910	993	996	1,026	1,041	1,128	1,210
XI. Shipping, etc.	74	198	761	787	856	857	871	942	953	972	1,026	1,153	1,194
XII. Agriculture, Pastoral, etc.	8	72	627	736	787	798	839	944	965	965	969	1,073	1,192
XIII. Domestic, Hotels, etc.	17	114	598	626	727	743	887	894	918	935	948	995	1,052
XIV. Miscellaneous	36	233	759	820	843	889	929	1,015	1,045	1,054	1,065	1,137	1,185
All Groups*	652	3,948	848	900	923	955	1,000	1,051	1,076	1,085	1,102	1,184	1,252

NOTE.—The figures in the above table are comparable both horizontally and vertically.  
 \* Weighted average: see graph on page 1105 hereof. † The decrease in this group is due to a reduction in the award rates in the furniture trade resulting from an appeal made by employers.

It may be seen that the index-numbers increased during the whole period under review from 848 in 1901, 1051 in 1911, 1051 in 1912 to 1184 in 1916, and to 1252 in 1917.

It was pointed out in Report No. 2 (see pages 25 and 26) that the index-numbers given in the preceding table are readily *reversible*, that is to say, any year other than the year 1911 can be taken as base, and an example was given, shewing the amount of wages payable in 1901, 1911 and 1912 in each industrial group for every £1 payable in 1891.

2. **Variations in Wage Index-Numbers in Different States, 1901 to 1917.**—The following table shews the progress in rates of wages for all industries in each State, the weighted average wage for the Commonwealth in 1911 being taken as the base (= 1000). These results are based generally upon rates of wages prevailing in the capital town of each State, but in certain industries, such as mining, rates are necessarily taken for places other than the capital towns.

These index-numbers are, of course, also reversible, and an illustration was given in Report No. 2 (see page 27).

### VARIATIONS IN NOMINAL WAGE INDEX-NUMBERS, IN DIFFERENT STATES, 1901 to 1917.

(WEIGHTED AVERAGE WAGE FOR COMMONWEALTH IN 1911=1000.)

States.	No. of Occupations included.		1901.	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.
	1901 to 1912.	1913 to 1917											
New South Wales	158	874	858	913	943	968	1,003	1,058	1,088	1,096	1,124	1,208	1,257
Victoria ...	150	909	796	871	887	924	985	1,038	1,058	1,065	1,078	1,148	1,229
Queensland ...	87	627	901	925	946	960	997	1,010	1,027	1,042	1,060	1,177	1,273
South Australia ...	134	567	819	868	905	951	1,013	1,048	1,061	1,063	1,067	1,151	1,231
Western Australia	69	489	1,052	1,061	1,068	1,116	1,152	1,191	1,214	1,226	1,236	1,272	1,345
Tasmania ...	54	482	719	725	732	772	799	934	1,025	1,028	1,039	1,112	1,163
Commonwealth*	652	3,948	848	900	923	955	1,000	1,051	1,076	1,085	1,102	1,184	1,252

\* Weighted average.

NOTE.—The figures in the above table are comparable both horizontally and vertically.

The significance of the above figures since 1906 can be better appreciated by reference to the graph on page 1105, which shews, of course, not only variations in wages in each State from year to year, but also the difference in wage level as between the several States. From this graph it is clearly seen that, excluding Western Australia, the difference between nominal wages in the several States has decreased very considerably since 1906. This difference is shewn at any point by the vertical distance between the graphs. Wages in Queensland increased since 1914 at a higher rate than in any other State, and the general level in that State is now higher than in any other State except Western Australia. The graphs for Victoria and South Australia lie very close together throughout the period. In Tasmania the first determination under the Wages Boards Acts 1910 and 1911 came into force in 1911. Since then wages in that State have increased rapidly, and their general level is now not far below those of the other States, except Western Australia.

3. **Variations in Effective Wages.**—In order to obtain an accurate measure of the progress of wage-earners, regard must be had to the purchasing power of wages, and the index-numbers based merely upon records of rates of wages must consequently be

subject to some correction, inasmuch as they take no account of variations in the purchasing-power of money. In computing these effective wage index-numbers, the nominal wage index-numbers given in sub-section 2 hereof have been divided by the purchasing-power-of-money index-numbers in Section IV., paragraph 5 of Report No. 8, p. 27. The resulting index-numbers shew for each State and for the Commonwealth for the years specified the variations in *effective* wages.

The following table shews the effective wage index-numbers for each State for each of the years indicated from 1901 to 1917.

**VARIATIONS IN EFFECTIVE WAGES IN EACH STATE AND COMMONWEALTH,  
1901 to 1917.\***

Particulars.	1901.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.
New South Wales ...	961	983	926	952	973	973	922	924	909	850	867	893
Victoria ...	915	979	941	980	981	1,037	981	1,007	964	844	877	950
Queensland ...	1,172	1,151	1,081	1,112	1,035	1,090	1,032	1,060	1,045	912	991	1,078
South Australia ...	948	960	911	914	943	957	906	947	929	847	896	989
Western Australia ...	1,024	1,068	1,060	1,081	1,091	1,023	1,032	1,076	1,073	1,011	1,005	1,079
Tasmania ...	827	818	788	769	812	838	896	976	943	843	870	894
Commonwealth...	964	996	946	974	985	1,000	955	975	952	862	894	950

\* As to the effect in abnormal periods, see Labour Report No. 6, pp. 20-2, Section IV., par. 3.

The figures in the above table from the year 1907 onwards are shewn in the graph on page 1106. A comparison between this graph and that on the opposite page shews that the difference between nominal and effective wages is very marked. In the first place, the whole nature of the graphs is entirely different. Instead of having a series of lines shewing a practically continuous and rapid upward trend, the effective wages shew (except for Tasmania) a series of fluctuating points, in which no very marked tendency is immediately discernible. It will be seen that, generally speaking, the years 1907, 1909, 1910, 1911, 1913, 1916 and 1917 were marked by increases in effective wages, but that in each of the years 1908, 1912, 1914 and 1915, there were rapid decreases. In each of these years in which effective wages declined there was a rapid increase in cost of food and groceries. In 1914 wages increased 0.9 per cent., but the purchasing-power-of-money index-number went up 3.1 per cent., with the result that effective wages decreased 2.3 per cent. In 1915 the nominal wage index-number increased 1.6 per cent., while the purchasing-power-of-money index-number increased 12.1 per cent., resulting in a decrease of 9.5 per cent. in the effective wage. In 1916 the nominal wage index-number increased 7.4 per cent., and the purchasing-power-of-money index-number only 3.6 per cent., which resulted in the effective wage index-number shewing an increase of 3.7 per cent. In 1917 the nominal wage index-number increased 5.7 per cent., and the purchasing-power-of-money index-number decreased 0.5 per cent., resulting in an increase in the effective wage index-number of 6.3 per cent.

One important feature common to both graphs (nominal and effective wages) is the manner in which the graphs for the individual States have, on the whole, approached more closely together. With the adoption of differential rates of wages fixed according to the relative purchasing-power of money, it appears probable that this tendency will continue in the future.

**4. Variations in Effective Wages and Standard of Comfort, 1901 to 1917.**—In the preceding paragraph particulars are given as to variations in effective wages in each State, due allowance having been made for variations in purchasing-power of money, though not for unemployment. Attention has also been drawn to the limitations to which they are subject in abnormal times.

For years prior to 1913 the data available as to unemployment are so meagre that comparative results allowing for variations both in purchasing-power of money and in unemployment cannot be accurately computed for the several States. In the subjoined

table, however, the percentage of unemployment for the whole Commonwealth at the end of the years specified has been used in order to obtain results shewing the variations in unemployment upon effective wages. Column I. shews the nominal rate of wage index-numbers, and Column II. the relative percentages unemployed. Applying these percentages to the numbers shewn in Column I., and deducting the results from each corresponding index-number, so as to allow for relative loss of time, the figures in Column III. are obtained. These figures are then re-computed with the year 1911 as base, and are shewn in Column IV. In Column V. the purchasing-power-of-money index-numbers is shewn, and in Columns VI. and VII. the effective wage index-numbers are given, firstly, for full work, and, secondly, allowing for lost time. These are obtained by dividing the figures in Columns I. and IV., respectively, by the corresponding figures in Column V. The resulting index-numbers shew for the Commonwealth for the years specified, the variations in *effective* wages, or in what may be called the "standard of comfort."\*

A comparison between the figures in Columns I. and VI. shews the relation between the nominal rates of wages and the purchasing efficiency of these rates. The figures in Column VII. shew variations in *effective* wages after allowing not only for variations in purchasing-power of money, but also for the relative extent of unemployment.

#### UNEMPLOYMENT, PURCHASING-POWER-OF-MONEY AND NOMINAL AND EFFECTIVE WAGE-INDEX NUMBERS, 1901 to 1917†.

Year.	I. Nominal Wages Index- Numbers.	II. Percentage Unem- ployed.	Rate of Wages Index- Numbers, allowing for Lost Time.		V. Purchas- ing-power- of-money Index- Numbers.	Effective Wage Index-Numbers.		
			III. Actual.	IV. Re-com- puted. (1911 =1,000).		VI. Full Work.	VII. Allowing for Unemploy- ment.	
1901	...	848	6.6	793	832	880	964	945
1906	...	866	6.7	808	848	902	960	940
1907	...	893	5.7	842	884	897	996	986
1908	...	900	6.0	846	888	951	946	934
1909	...	923	5.8	870	913	948	974	963
1910	...	955	5.6	901	945	970	985	974
1911	...	1,000	4.7	953	1,000	1,000	1,000	1,000
1912	...	1,051	5.5	993	1,042	1,101	955	946
1913	...	1,076	5.3	1,021	1,071	1,104	975	970
1914	...	1,085	11.0	966	1,014	1,140	952	889
1915	...	1,102	6.8	1,027	1,078	1,278	862	844
1916	...	1,184	6.7	1,105	1,159	1,324	894	875
1917	...	1,252	7.4	1,159	1,216	1,318	950	923

† As to the effect in abnormal periods, see Section iv., par. 3, of Labour Report No. 6.

It may be seen that the nominal wage index-number has steadily increased, and that the increase has been at a somewhat greater rate (except in the years 1908, 1912, 1914 and 1915) than the increase in the cost of food, groceries and house rent. Owing to the decreases in these years the effective wage index-numbers (both "Full Work" and "Allowing for Unemployment") do not, on the whole, shew any general increase, but fluctuate between a range which reached its maximum in 1911, and its minimum in 1915. In 1916 and 1917, the effective wage index-numbers both for "Full Work and Allowing for Unemployment" exhibit an increase. This is due to the fact that the increase in the nominal wage index-number has been greater than the increase in the index-number which embraces cost of food, groceries, and house rent.

\* This expression must not be confused with "standard of living." A change in the standard of living necessarily involves a change in regimen (see Labour Report No. 1), that is, a change in the nature or in the relative quantity of commodities purchased, or both. A change in the "standard of comfort" merely implies a variation in effective wages, which variation may, or may not, result in, or be accompanied by, a change in the "standard of living."



#### § 4. Changes in Rates of Wage.

1. **General.**—The collection of information regarding changes in rates of wage throughout the Commonwealth dates from the 1st January, 1913.

(i.) *Definition of a Change in Rate of Wage.* For the purpose of these statistics a change in rate of wage is defined as a change in the weekly rates of remuneration of a certain class of employees, apart from any change in the nature of the work performed or apart from any revision of rates due to increased length of service or experience. It is obvious that under this definition certain classes of changes are excluded, such, for example, as (a) changes in rates of pay due to promotion, progressive increments, or, on the other hand, to reduction in pay or grade to inefficient workers, and (b) changes in average earnings in an occupation due to a change in the proportions which higher paid classes of workers bear to lower paid classes. Bonuses to employees have not been taken into account in the tabulations. Each single change recorded relates to a change in the rates of wage effected in a specific industry or calling, and includes any and all changes to workers in that industry, irrespective of the different number of separate occupations or trades affected. Further, it should be observed that in some instances a change may relate to the employees of a single employer or to those of a number of employers, according to the instrument or method operating to bring about the change.

(ii.) *Sources of Information.* Primary information merely as to the fact that a change in rate of wage has occurred is obtained through the following channels :—(a) the Industrial Registrar or Chief Inspector of Factories in each State ; (b) Reports from Labour Agents and Correspondents ; (c) Quarterly reports from Secretaries of Trade Unions ; (d) Returns relating to industrial disputes which resulted in changes in rates of wage ; (e) Reports in newspapers, labour and trade reviews, and other publications.

(iii.) *Collection of Particulars concerning Changes.* On the occurrence of a change in rate of wage, forms\* (prescribed under the Census and Statistics Act 1905) are issued to employers and employers' associations (if any) and also to the secretaries of the trade unions, the members of which are affected by the change. In certain cases forms are also issued, if necessary, to individual employers. The particulars which have to be inserted in these forms furnish information regarding the occupations of the workers affected, the number of workers in each occupation, the rates of wage paid before and after the change, the locality affected, and the date on which the change took effect. Information must also be furnished regarding employers and employers' associations concerned (if any), and the method by which the change was effected.

When the forms are returned from the various persons who are required to complete them, the returns are checked and compared with each other and with copies of awards, determinations, and agreements. In all cases when the information furnished on the forms is incomplete or unsatisfactory, further inquiries are made, and the figures checked by reference to census results, industrial statistics, factory reports, etc.

2. **Comparative Summary of Changes in Rates of Wage in each State for 1913, 1914, 1915, 1916 and 1917.**—The following table gives particulars of changes which occurred in each State of the Commonwealth during the years specified. As regards the number of persons affected, the particulars given refer to the total number of persons ordinarily engaged in the various industries. The results as to the amount of increase in wages are computed for a full week's work for all persons ordinarily engaged in the several industries and occupations affected, and in cases of changes in existing minimum rates under awards

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\* Since these forms are issued under the authority of the Census and Statistics Act 1905, it is compulsory upon prescribed persons to furnish the information required.

or determinations of industrial tribunals, it has ordinarily been assumed (in the absence of any definite information to the contrary) that the whole of the employees in each occupation received the minimum rates of wage before and after the change.

It should be clearly understood that the figures given in the third division of the following table (amount of increase per week) do not relate to the increase each week, but only to the increase in a single week on the assumption that the full number of persons ordinarily engaged in the particular trade or occupation affected by the change were employed during that week. It is obvious, therefore, that the aggregate effect per annum cannot be obtained without making due allowance for unemployment and for occupations in which employment is seasonal or intermittent. It is also obvious that since unemployment and activity in all branches of industry may vary from year to year, and in many branches from season to season also, no accurate estimate of the actual effect of the changes in the total amount of wages received or paid *per annum* can be made, until the determining factors have been investigated. These factors are (a) the amount of unemployment, and (b) the period of employment in seasonal industries.

It should be observed that changes brought about by awards and agreements under the Commonwealth Conciliation and Arbitration Act 1904-15 are necessarily included hereunder as changes in each State to which such awards and agreements apply. The average increase per head per week is computed to the nearest penny.

### CHANGES IN RATES OF WAGE.—NUMBER AND EFFECT OF CHANGES IN EACH STATE AND TERRITORY, 1913, 1914, 1915, 1916 and 1917.

Particulars.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	N.T.	F.C.T.	C'wealth.
No. of Changes	1913 149 1914 185 1915 169 1916 377 1917 201	81 69 87 168 106	41 50 60 134 142	26 18 31 98 78	20 42 25 42 55	12 19 24 37 38	...	...	329 384* 401† 870‡ 637§
No. of Persons Affected	1913 89,618 1914 56,469 1915 109,260 1916 242,564 1917 101,158	49,254 29,876 39,087 119,878 68,272	16,645 20,198 22,864 72,079 72,843	4,574 5,624 10,206 40,925 20,209	3,036 3,399 2,661 5,848 12,997	3,005 4,262 3,147 7,232 5,288	...	...	166,132 125,218* 197,410† 492,487‡ 292,910§
Total Net Amount of Increase per Week	1913 £ 21,789 1914 £ 13,558 1915 £ 29,525 1916 £ 56,835 1917 £ 23,896	9,880 6,688 8,078 30,566 15,129	3,702 5,128 6,398 40,451 20,083	1,279 1,941 3,539 9,930 6,070	428 2,423 562 1,440 3,407	635 804 778 1,980 1,987	...	...	37,713 30,685* 51,905† 142,923‡ 81,007§
Average Increase per Head per Week	1913 s. d. 4 10 1914 4 10 1915 5 4 1916 4 8 1917 5 9	s. d. 4 0 4 6 4 2 5 1 4 5	s. d. 4 5 5 1 5 7 11 3 5 6	s. d. 5 7 6 11 6 11 4 10 6 0	s. d. 2 10 5 9 4 3 4 11 5 3	s. d. 4 3 3 9 4 11 5 6 7 6	s. d. 3 11 9 5 6 10 11 1	s. d. 5 1 ...	s. d. 4 6 4 11* 5 3† 5 10‡ 5 6§

\* Including one change (common to all States) of £143 per week to 390 workpeople, brought about by agreement made pursuant to Section 24 of the Commonwealth Conciliation and Arbitration Act. † Including two changes (common to all States) which resulted in an increase in wages of £2938 per week to 10,000 workpeople. ‡ Including six changes (common to all States), which resulted in an increase in wages of £1593 per week to 3546 workpeople. § Including one change (common to all States) which resulted in an increase in wages of £4800 per week to 11,000 workpeople. The particulars relating to the numbers of workpeople who were affected by these changes, and the net amount of increase per week in each State were not ascertainable.

In point of number of changes in each State, New South Wales has been first, Victoria second, and Queensland third, in each of the years specified, with the exception that, during the year 1917, the number of changes in Queensland exceeded the number recorded in Victoria. Some little variation has occurred in the position of the remaining States. The relative position of the States in point of the numbers of workers affected in each year is, of course, largely due to the magnitude of the different industries and callings in which changes took place.

Included in the particulars contained in the foregoing table are those relating to seven decreases during the year 1915, eight during the year 1916, and eleven during the year 1917. The States in which these decreases were recorded were, in 1915: New South Wales two, Tasmania two, and in Victoria, South Australia and Western Australia one each, affecting in all 494 workers to the extent of a decrease of £81 per week; in 1916: New South Wales six, Victoria and Western Australia one each, affecting in all 1730 workers to the extent of a decrease of £286 per week; and in 1917: New South Wales seven, Queensland two, and one each in Victoria and South Australia. The total number of workpeople affected by these changes was 12,828, and the amount of decrease per week was £3267.

**3. Number and Magnitude of Changes in Rates of Wage in the Commonwealth Classified according to Industrial Groups, 1916 and 1917.**—In the following table particulars are given of the number of changes, the number of persons affected, the total amount of increase per week, and the average increase per head per week, classified according to Industrial Groups throughout the Commonwealth during the years 1916 and 1917.

**CHANGES IN RATES OF WAGE IN COMMONWEALTH CLASSIFIED IN INDUSTRIAL GROUPS, 1916 and 1917.\***

Industrial Group.	No. of Changes.		No. of Persons Affected.		Total Net Amount of Increase per week.		Average Increase per Head per week.	
	1916.	1917.	1916.	1917.	1916.	1917.	1916.	1917.
I. Wood, Furniture, Timber, etc.	35	14	16,111	10,495	£ 4,255	£ 2,568	s. d. 5 3	s. d. 4 11
II. Engineering, Metal Works, etc.	74	60	27,412	16,994	6,894	3,394	5 0	4 0
III. Food, Drink, Tobacco, etc. ...	107	66	35,171	30,515	16,383	2,015	8 7	1 4
IV. Clothing, Hats, Boots, etc. ...	21	21	30,918	25,652	6,853	6,104	4 5	4 9
V. Books, Printing, etc. ...	27	31	10,210	6,386	2,270	1,981	4 5	6 2
VI. Other Manufacturing ...	108	53	34,037	12,585	9,172	4,046	5 5	6 5
VII. Building ...	37	38	37,536	11,426	12,400	3,477	6 7	6 1
VIII. Mines, Quarries, etc. ...	63	28	63,308	25,022	17,827	12,544	5 8	10 0
IX. Rail and Tramway Services...	64	50	83,526	37,264	17,450	12,711	4 2	6 10
X. Other Land Transport ...	31	19	19,232	10,261	5,283	3,054	5 6	5 11
XI. Shipping, etc. ...	44	25	12,898	12,613	3,411	5,629	5 3	8 11
XII. Pastoral, etc. ...	11	10	16,266	3,440	16,858	1,096	20 9	6 4
XIII. Domestic, Hotels, etc. ...	13	15	9,882	15,359	9,016	3,720	4 1	4 10
XIV. Miscellaneous ...	186	144	92,980	74,898	21,847	18,668	4 8	5 0
Total, Commonwealth ...	821	574	492,487	292,910	142,923	81,007	5 10	5 6

\* In this table an Industrial Award or Agreement under the Commonwealth Conciliation and Arbitration Act is counted as one change only, although such Award or Agreement may be operative in more than one State.

In point of number of persons affected by changes in 1917, Group XIV. (Miscellaneous), with 144 changes, affecting 74,898 persons, comes first. This is followed in the order named by IX. (Rail and Tramway Services); III. (Food, Drink, Tobacco, etc.); IV. (Clothing, Hats, Boots, etc.); VIII. (Mines, Quarries, etc.); II. (Engineering, Metal Works, etc.); down to Group XII. (Pastoral, etc.), with ten changes, affecting 3440 persons only. In point of individual increase per head per week, Industrial Group VII. (Mines, Quarries, etc.), with an average increase of 10s. 0d. per week, comes first, followed by Group XI. (Shipping, etc.), 8s. 11d. per week. The average increase per head per week for all groups was 5s. 6d., which amount is slightly lower than the average for the previous twelve months, 5s. 10d. per week.

4. **Changes in Rates of Wage in Female Occupations.—Number and Effect of Changes in each State, 1913-1917.**—Included in the changes in rates of wage recorded in the tables on pages 1097-1098 are those which in the whole or part thereof affected female occupations. Particulars in respect to these changes in so far as they relate to the numbers of female workers affected, etc., are set out hereunder.

(i.) *Changes in Rates of Wage according to States.* In the following table, particulars are given of the effect of changes in rates of wage to female workers, as recorded for each State during the years 1913 to 1917 inclusive:—

**CHANGES IN RATES OF WAGE.—FEMALE OCCUPATIONS.—EFFECT OF CHANGES IN EACH STATE, 1913-1917.**

Year.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'wealth.
NUMBER OF PERSONS AFFECTED.							
1913	6,148	4,562	550	958	...	1,480	13,698
1914	7,696	4,232	570	...	783	30	13,311
1915	11,588	3,065	1,033	399	73	360	16,518
1916	16,915	20,211	3,954	*1,348	179	347	42,954
1917	18,557	20,136	9,777	3,365	209	529	52,573
NET AMOUNT OF INCREASE PER WEEK.							
	£	£	£	£	£	£	£
1913	1,107	563	55	152	...	123	2,000
1914	1,400	542	73	...	266	7	2,288
1915	2,550	506	*148	108	17	48	3,377
1916	3,480	3,689	577	*162	26	43	7,977
1917	3,123	4,049	2,977	826	78	109	11,162
AVERAGE INCREASE PER HEAD PER WEEK.							
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
1913	3 7	2 6	2 0	3 2	...	1 8	2 11
1914	3 8	2 7	2 7	...	6 9	4 8	3 5
1915	4 5	3 4	2 10	5 5	4 8	2 8	4 1
1916	4 1	3 8	2 11	2 5	2 11	2 6	3 9
1917	3 4	4 0	6 1	4 11	7 6	4 1	4 3

\* Including effect of one change which affected nine female employees in the Northern Territory.

It will be seen that the number of females affected by changes in rates of wage during 1917 is greatly in excess of the number recorded during any previous year.

The figures for Queensland and South Australia shew comparatively large increases. In Victoria the number of persons is slightly lower, while in the remaining States there are small increases. In all States with the exception of New South Wales, the amounts shewing the net amount of increase per week and the average increase per head per week are higher than those for the year 1916. The average increase per head per week for all changes throughout the Commonwealth during the year 1917 was 4s. 3d. per week, which is higher than the average increase for any previous year.

(ii.) *Changes in Rates of Wage in Female Occupations according to Industrial Groups.* The particulars set out in the immediately preceding table are further analysed and classified according to the industrial groups in which the changes took place in each State.

**CHANGES IN RATES OF WAGE IN FEMALE OCCUPATIONS IN EACH STATE,  
CLASSIFIED ACCORDING TO INDUSTRIAL GROUPS, 1916, 1917.**

PARTICULARS.	INDUSTRIAL GROUP.					
	I. Wood, Furni- ture, etc.	II. Engin- eering, Metal Works, etc.	III. Food, Drink, etc.	IV. Cloth- ing, Hats, Boots, etc.	V. Books, Print- ing, etc.	VI. Other Manu- factur- ing.
1916.						
NEW SOUTH WALES—						
Number of Persons affected ...	125	...	540	4,510	2,030	843
Amount of Increase per week ...	£ 38	...	91	761	342	145
VICTORIA—						
Number of Persons affected ...	198	29	1,344	12,864	1,440	1,482
Amount of Increase per week ...	£ 25	3	198	2,808	203	190
QUEENSLAND—						
Number of Persons affected ...	...	...	340	436	...	...
Amount of Increase per week ...	£ ...	...	41	54	...	...
SOUTH AUSTRALIA—						
Number of Persons affected ...	40	20	110	195	225	...
Amount of Increase per week ...	£ 6	5	7	26	28	...
WESTERN AUSTRALIA—						
Number of Persons affected ...	...	...	...	40	...	...
Amount of Increase per week ...	£ ...	...	...	8	...	...
TASMANIA—						
Number of Persons affected ...	30	...	...	300	...	6
Amount of Increase per week ...	£ 7	...	...	33	...	1
NORTHERN TERRITORY—						
Number of persons affected ...	...	...	...	...	...	...
Amount of Increase per week ...	£ ...	...	...	...	...	...
COMMONWEALTH—						
Number of Persons affected ...	393	49	2,334	18,345	3,695	2,331
Amount of Increase per week ...	£ 76	8	337	3,690	573	336

Particulars.	INDUSTRIAL GROUP.					
	IX. Rail and Tram Ser- vices.	XI. Ship- ping, etc.	XII. Pas- toral, Agricul- tural, etc.	XIII. Dom- estic, Hotels, etc.	XIV. Miscel- laneous	All Groups

1916 (continued).

NEW SOUTH WALES—						
Number of Persons affected ...	9	13	...	1,781	7,064	16,915
Amount of Increase per week ...	£ 2	1	...	456	1,644	3,480
VICTORIA—						
Number of Persons affected ...	...	...	100	40	2,714	20,211
Amount of Increase per week ...	£ ...	...	22	7	233	3,689
QUEENSLAND—						
Number of Persons affected ...	...	...	...	200	2,978	3,954
Amount of Increase per week ...	£ ...	...	...	20	462	577
SOUTH AUSTRALIA—						
Number of Persons affected ...	3	...	...	400	346	1,339
Amount of Increase per week ...	£ 1	...	...	39	44	156
WESTERN AUSTRALIA—						
Number of Persons affected ...	...	...	...	120	19	179
Amount of Increase per week ...	£ ...	...	...	15	3	26
TASMANIA—						
Number of Persons affected— ...	...	...	...	...	11	347
Amount of Increase per week ...	£ ...	...	...	...	2	43
NORTHERN TERRITORY—						
Number of Persons affected ...	...	...	...	9	...	9
Amount of Increase per week ...	£ ...	...	...	6	...	6
COMMONWEALTH—						
Number of Persons affected ...	12	13	100	2,550	13,132	42,954
Amount of Increase per week ...	£ 3	1	22	543	2,388	7,977

CHANGES IN RATES OF WAGE IN FEMALE OCCUPATIONS IN EACH  
STATE, CLASSIFIED ACCORDING TO INDUSTRIAL GROUPS, 1916, 1917  
—Continued.

PARTICULARS.	INDUSTRIAL GROUP.							
	I. Wood, Furni- ture, etc.	II. Engin- eering, Metal Works, etc.	III. Food, Drink, etc.	IV. Cloth- ing, Hats, Boots, etc.	V. Books, Print- ing, etc.	VI. Other Manu- factur- ing.		
1917.								
NEW SOUTH WALES—								
Number of Persons affected	...	...	...	219	8,810	...	326	
Amount of Increase per week	...	£	...	36	1,556	...	53	
VICTORIA—								
Number of Persons affected	...	...	...	6	1,255	9,370	317	240
Amount of Increase per week	...	£	...	1	83	2,440	46	18
QUEENSLAND—								
Number of Persons affected	...	...	50	...	540	3,025	385	...
Amount of Increase per week	...	£	7	...	143	837	87	...
SOUTH AUSTRALIA—								
Number of Persons affected	...	...	...	...	45	1,910	200	23
Amount of Increase per week	...	£	...	...	7	523	40	6
WESTERN AUSTRALIA—								
Number of Persons affected	...	...	20	...	...	...	...	...
Amount of Increase per week	...	£	4	...	...	...	...	...
TASMANIA—								
Number of Persons affected	...	...	...	...	...	...	60	10
Amount of Increase per week	...	£	...	...	...	...	12	1
COMMONWEALTH—								
Number of Persons affected	...	...	70	6	2,059	23,115	962	599
Amount of Increase per week	...	£	11	1	269	5,356	185	78
PARTICULARS.	INDUSTRIAL GROUP.							
	IX. Rail and Tram Ser- vices.	X. Other Land Trans- port.	XIII. Domes- tic, Hotels, etc.	XIV. Miscel- laneous	All Groups			

1917 (continued).

NEW SOUTH WALES—						
Number of Persons affected	...	106	50	5,010	4,036	18,557
Amount of Increase per week	£	19	(*40)	672	827	3,123
VICTORIA—						
Number of Persons affected	...	...	...	4,050	4,898	20,136
Amount of Increase per week	£	...	...	1,012	449	4,049
QUEENSLAND—						
Number of Persons affected	...	730	...	1,250	3,797	9,777
Amount of Increase per week	£	170	...	575	1,158	2,977
SOUTH AUSTRALIA—						
Number of Persons affected	...	...	...	...	1,187	3,365
Amount of Increase per week	£	...	...	...	250	826
WESTERN AUSTRALIA—						
Number of Persons affected	...	8	...	...	181	209
Amount of Increase per week	£	2	...	...	72	78
TASMANIA—						
Number of Persons affected	...	...	...	...	459	529
Amount of Increase per week	£	...	...	...	96	109
COMMONWEALTH—						
Number of Persons affected	...	844	50	10,310	14,558	52,573
Amount of Increase per week	£	191	(*40)	2,259	2,852	11,162

\* Decrease.

Of the total number of female employees (52,573) who were affected by changes in rates of wage during the year 1917, 23,115 were engaged in the manufacture of clothing, hats, etc. (Group IV.); 14,558 in various occupations classified in Group XIV. (Miscellaneous); 10,310 were working in hotels, restaurants, etc. (Group XIII.); 2059 were

engaged in the preparation or distribution of food and drink (Group III.), while 962 were employed in printing and bookbinding establishments (Group V.). In the other groups, with the exception of Groups VI. (Other Manufacturing), and IX. (Rail and Tram Services), the number who received increased wages during the year was comparatively small.

5. **Methods by which Changes were Effected.**—In the following table particulars are given for the Commonwealth of the number of changes in rates of wage, the number of workpeople affected, and the total net amount of increase to the weekly wage distribution, brought about either without, or after, stoppage of work, during the years 1916 and 1917 respectively, as a result of the application of one or other of the methods set out in the tables:—

**CHANGES IN RATES OF WAGE.—METHODS BY WHICH EFFECTED,  
1916 and 1917.**

Methods by which Changes were Effected.	Without Stoppage of Work.			After Stoppage of Work.			All Changes.		
	No. of Changes.	No. of Work- people Affected.	Total Net Amount of In- crease per week.	No. of Changes.	No. of Work- people Affected.	Total Net Amount of In- crease per week.	No. of Changes.	No. of Work- people Affected.	Total Net Amount of In- crease per week.
1916.									
By voluntary action of employers ...	51	55,560	10,631	...	...	...	51	55,560	10,631
By direct negotiations ...	133	40,174	9,645	42	6,459	2,469	175	46,633	12,114
By negotiations, intervention or assist- ance of a third party ...	4	3,698	984	5	1,286	534	9	4,984	1,518
By award of court under Common- wealth Act*	15	40,787	14,922	2	191	43	17	40,978	14,965
By agreement registered under Com- monwealth Act*	28	24,090	6,773	2	91	27	30	25,081	6,800
By award or determination under State Acts ...	461	302,828	93,370	6	2,512	635	467	305,340	94,005
By agreement registered under State Acts ...	64	6,303	1,813	8	7,608	877	72	13,911	2,690
<b>Total* ...</b>	<b>756</b>	<b>474,340</b>	<b>138,338</b>	<b>65</b>	<b>18,147</b>	<b>4,585</b>	<b>821</b>	<b>492,487</b>	<b>142,923</b>
1917.									
By voluntary action of employers ...	24	9,531	3,097	...	...	...	24	9,531	3,097
By direct negotiations ...	49	13,727	4,465	26	2,100	964	75	15,827	5,429
By negotiations, intervention or assist- ance of third party ...	7	3,583	1,634	7	15,917	9,362	14	19,500	10,996
By award of court under Common- wealth Act*	35	20,759	7,654	...	...	...	35	20,759	7,654
By agreement registered under Com- monwealth Act*	28	16,443	5,579	...	...	...	28	16,443	5,579
By award or determination under State Acts ...	306	197,941	44,439	4	782	38	310	198,723	44,477
By agreement registered under State Acts ...	86	11,777	3,659	2	350	116	88	12,127	3,775
<b>Total* ...</b>	<b>535</b>	<b>273,761</b>	<b>70,527</b>	<b>39</b>	<b>19,149</b>	<b>10,480</b>	<b>574</b>	<b>292,910</b>	<b>81,007</b>

\* In this section of the table an Award or Agreement under the Commonwealth Conciliation and Arbitration Act, the Commonwealth (Public Service) Arbitration Act or an Order of the War Precautions Coal Board is counted as one change only, although such Award, Agreement, or Order may be operative in more than one State.

The total number of changes recorded during the year 1917 was 574, of which 310, or 57 per cent. of the total number, were brought about by award or determination under State Industrial Act. The number of changes brought about by this method was considerably lower in 1917 than in 1916, but the percentage of the total for each year was 57 per cent. The number of awards made by the Commonwealth Court of Conciliation and Arbitration shows an increase compared with previous years. The number of changes brought about by direct negotiations between employers and employees is considerably lower than those settled by this method during the previous twelve months.

## § 5. Current Rates of Wage in Different Occupations and States.

1. **Comparative Table of Minimum Rates of Wage, 31st December, 1917.**—The collection of material respecting the current rate of wage payable in different callings and in occupations in various industries carried on in each State of the Commonwealth was first undertaken by this Bureau in the early part of the year 1913. The particulars acquired were obtained primarily from awards, determinations and agreements under Commonwealth and State Acts, and therefore shew the minimum rates prescribed. In cases where no award, determination, or agreement was in force, particulars are given, where possible, of the ruling union or predominant rate as furnished by employers or Secretaries of Trade Unions. All particulars obtained from this source are marked with an asterisk. It will be seen that for convenience of comparison *the wages are in nearly all cases presented as a weekly rate*, though in many industries they are actually based on daily or hourly rates, as specified in awards, determinations, or agreements. This caution is necessary, in view of the fact that it is often in those industries and occupations in which employment is of an exceptionally casual or intermittent nature that wages are fixed or paid at a daily or hourly rate. Hence the average weekly earnings in such occupations will probably fall considerably short of the weekly rates specified in the table. These particulars furnished the necessary data for the computation of average rates of wage in various industrial groups, and in each State and all States.

Since the 30th April, 1914, the number of occupations included in comparative computations have been kept constant, but the particulars of wages contained in the tables on p. 1109 *et seq.* include those for many additional occupations. In most instances these have been taken from awards or determinations made subsequent to that date by industrial tribunals or from agreements registered under Commonwealth or State Acts, or as a result of direct inquiry.

The rates specified refer generally to the capital town of each State, but in industries such as mining and agriculture, rates are necessarily taken for places other than the capital towns. *The figures given in the tables on p. 1109 et seq. relate to adult male workers, and in the second part to adult female workers, and in each case represent (except where otherwise specified in the footnotes) the amounts payable for a full week's work of 48 hours.* In every case where the hours of labour constituting a full week's work are other than 48, the number of hours is indicated in the footnotes.

2. **Weighted Average Nominal Rate of Wage Payable to Adult Male Workers in each State, 31st December, 1917.**—The following table shews the weighted average nominal weekly rate of wage payable to adult male workers for a full week's work in each State and the Commonwealth. Taking the average for the whole Commonwealth as the base (=1000), index-numbers for each State are also shewn. The number of occupations upon which these results are based amounts in the aggregate to no fewer than 3948.

### WEIGHTED AVERAGE NOMINAL WEEKLY RATE OF WAGE PAYABLE TO ADULT MALE WORKERS FOR A FULL WEEK'S WORK, AND WAGE INDEX-NUMBERS IN EACH STATE AND COMMONWEALTH, 31st DECEMBER, 1917.

Particulars.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'wlth.
Number of Occupations included ...	874	909	627	567	489	492	3,948
Weighted Average Weekly Rates of Wages ...	64s. 6d.	63s. 0d.	65s. 3d.	63s. 1d.	68s. 11d.	59s. 7d.	64s. 2d.*
Index-Numbers ...	1,003	982	1,017	983	1,074	929	1,000*

\* Weighted average.

The results shew that the weighted average nominal rate of wage was highest in Western Australia, followed in the order named by Queensland, New South Wales, South Australia, Victoria, and Tasmania.



3. **Weighted Average Nominal Weekly Rate of Wage Payable to Adult Male Workers in each Industrial Group, 31st December, 1917.**—The following table gives similar particulars in regard to the several industrial groups and to the weighted average for all groups combined. In computing the index-numbers the weighted average for all groups is taken as base (=1000).

**WEIGHTED AVERAGE NOMINAL WEEKLY RATE OF WAGE PAYABLE TO ADULT MALE WORKERS FOR A FULL WEEK'S WORK, AND WAGE INDEX-NUMBERS IN EACH INDUSTRIAL GROUP, 31st DECEMBER, 1917.**

Industrial Group.	No. of Rates Included.	Weighted Aver. Weekly Wage (for Full Week's Work).	Index-Numbers.
		s. d.	
I. Wood, Furniture, etc. ...	270	66 0	1,028
II. Engineering, Metal Works, etc. ...	636	65 0	1,013
III. Food, Drink, etc. ...	576	63 7	991
IV. Clothing, Boots, etc. ...	124	59 7	928
V. Books, Printing, etc. ...	205	70 6	1,098
VI. Other Manufacturing ...	875	63 10	994
VII. Building ...	190	72 5	1,129
VIII. Mining, etc. ...	161	78 4	1,221
IX. Rail and Tram Services, etc. ...	224	65 11	1,027
X. Other Land Transport ...	70	62 0	966
XI. Shipping, etc. ...	198	61 2†	954
XII. Agricultural, Pastoral, etc. ...	72	61 1‡	951
XIII. Domestic, Hotels, etc. ...	114	53 11§	840
XIV. Miscellaneous ...	233	60 9	947
All Groups ...	3,948	64 2	1,000*

\* Weighted average. † Including the value of victualling and accommodation (estimated at 45s. per month) where supplied. ‡ Including the value of Board and Lodging where supplied as follows:—In the agricultural industry, 14s. per week in Victoria, and 15s. in the remaining States; in the pastoral industry, 15s. in West Australia; 17s. in Tasmania, and 20s. in the remaining States. § Including the value of Board and Lodging where supplied as follows:—In Sydney 15s. 6d. to 19s.; in Melbourne 14s.; in Brisbane 14s. and 15s.; in Perth 22s., and in Adelaide and Hobart 15s. per week.

From the above table it may be seen that the highest weighted average wage was that paid in Group VIII. (Mining), 78s. 4d. per week, or approximately 22 per cent. above the weighted average for all groups. The rates of wage range from 78s. 4d. per week down to 53s. 11d. per week, the lowest being in Group XIII. (Hotels, etc.), which is nearly 16 per cent. below the average of all groups.

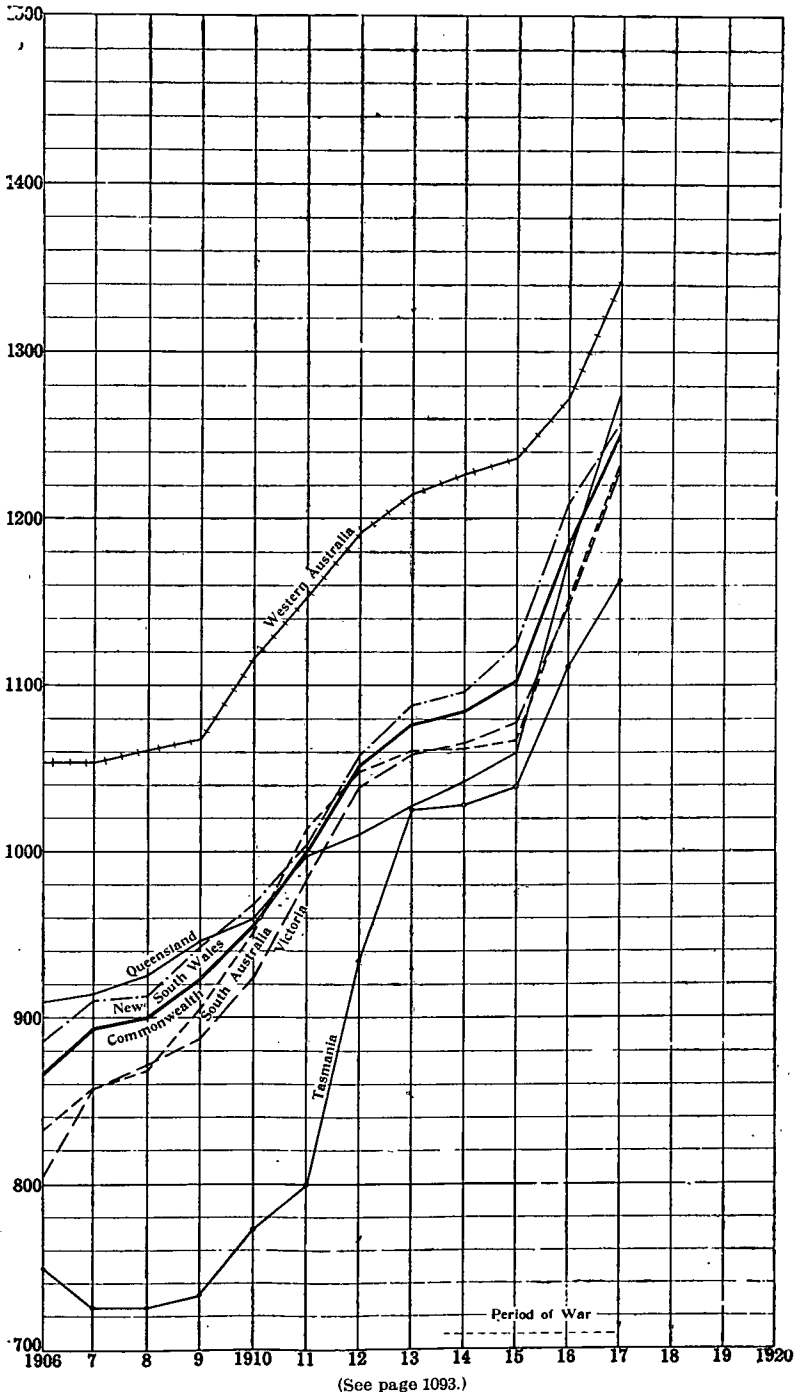
4. **Weighted Average Nominal Rate of Wage Payable to Adult Female Workers in each State, 31st December, 1917.**—The following table shews the weighted average nominal weekly rate of wage payable to adult female workers for a full week's work in each State and the Commonwealth. Taking the average for the whole Commonwealth as the base (=1000), index-numbers for each State are also shewn:—

**WEIGHTED AVERAGE NOMINAL WEEKLY RATE OF WAGE PAYABLE TO ADULT FEMALE WORKERS FOR A FULL WEEK'S WORK, AND WAGE INDEX-NUMBERS IN EACH STATE AND COMMONWEALTH, 31st DECEMBER, 1917.**

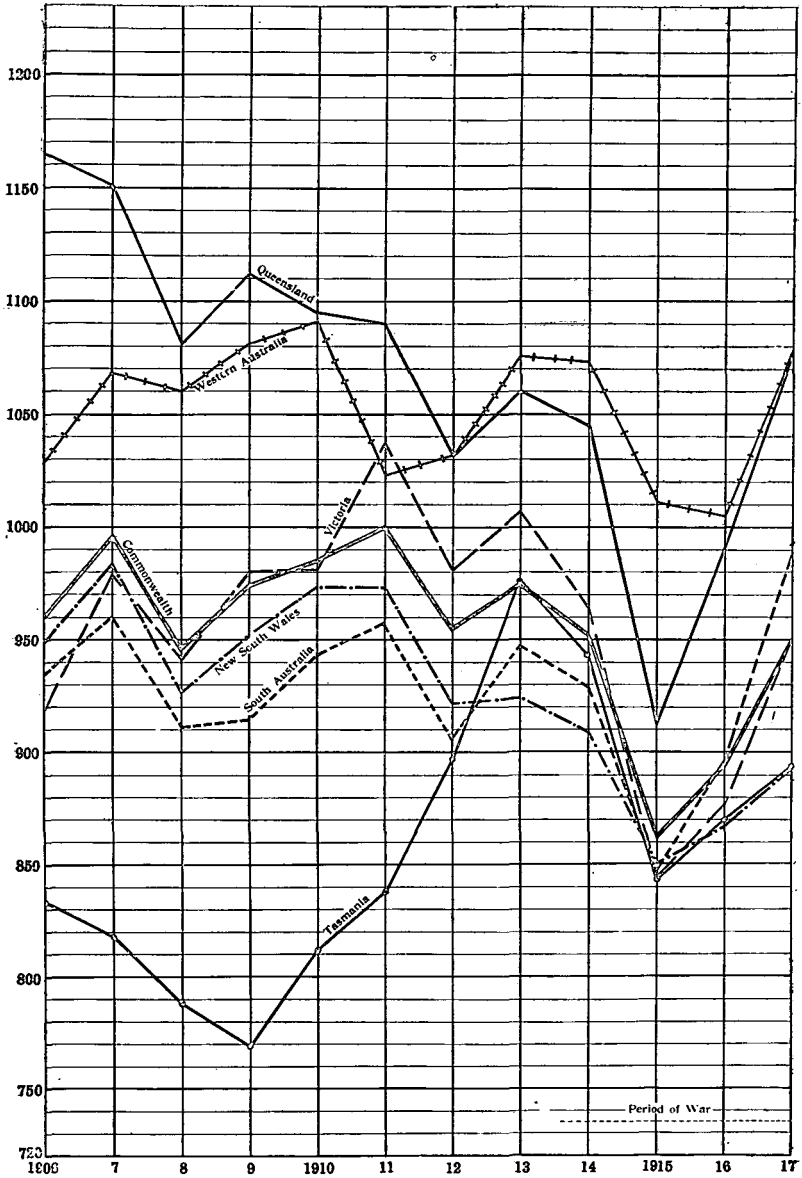
Particulars.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'wlth.
Number of Occupations included ...	85	87	37	47	24	28	308
Weighted Average Weekly Rate of Wage ...	30s. 5d.	30s. 4d.	30s. 5d.	27s. 9d.	38s. 10d.	28s. 5d.	30s. 5d.*
Index-Numbers ...	998	996	999	910	1,276	932	1,000*

\* Weighted average.

NOMINAL WAGE INDEX-NUMBERS IN EACH STATE AND COMMONWEALTH,  
1906 to 1917.



EFFECTIVE WAGE INDEX-NUMBERS IN EACH STATE AND COMMONWEALTH.  
1906 to 1917.



(See page 1094.)

It will be seen that the weighted average nominal rate of wage for adult female workers was highest in Western Australia, followed in the order named by New South Wales and Queensland (equal), Victoria, Tasmania, and South Australia.

**5. Weighted Average Nominal Rates of Wage Payable to Adult Female Workers in Industrial Groups, 31st December, 1917.**—The following table gives separate particulars regarding the weighted average nominal rates of wage of females in the chief industrial groups in which they are employed, and also shows the weighted average for all groups combined. Index-numbers based on the average for the Commonwealth as the base (=1000) are also given :—

**WEIGHTED AVERAGE NOMINAL WEEKLY RATES OF WAGE PAYABLE TO ADULT FEMALE WORKERS FOR A FULL WEEK'S WORK, AND WAGE INDEX-NUMBERS IN INDUSTRIAL GROUPS, 31st DECEMBER, 1917.**

Industrial Group.	No. of Rates Included.	Weighted Average Weekly Wage (for Full Week's Work).		Index-Numbers.
		s.	d.	
III. Food, Drink, etc. ... ..	35	26	4	865
IV. Clothing, Boots, etc. ... ..	114	29	7	972
I., II., V., VI., All Other Manufacturing combined ... ..	84	30	4	996
XIII. Domestic, Hotels, etc. ... ..	57	33	5*	1,098
XIV. Shop Assistants, Clerks, etc. ... ..	18	30	6	1,001
All Groups ... ..	308	30	5	1,000†

\* Including the value of Board and Lodging where supplied as follows :—In Sydney, 15s. 6d. to 19s.; in Melbourne, 14s.; in Brisbane, 14s. and 15s.; in Perth, 22s., and in Adelaide and Hobart, 15s. per week. † Weighted average.

**6. Relative Hours of Labour and Hourly Rates of Wage, 1914, 1915, 1916 and 1917.**—The rates of wage referred to in the preceding paragraphs of this section relate to the minimum rates payable for a full week's work. It should be observed, however, that the number of hours which constitutes a full week's work differs in many instances, not only as between various trades and occupations in each individual State, but also as between the same trades and occupations in the several States. In order to secure what may be for some purposes a more adequate standard of comparison, it is desirable to reduce the comparison to a common basis, viz., the rate of wage per hour. Particulars are given in the following table, classified according to States, for male and female occupations separately, at 30th April and 31st December, 1914, at 31st December, 1915, at 31st December, 1916, and at 31st December, 1917.† These particulars relate to (a) the weighted average nominal weekly wage, (b) the weighted average number of working hours constituting a full week's work, and (c) the weighted average hourly wage. It should be observed that the weighted average weekly wage relates to all industrial classes combined, and includes the value of board and lodging, where supplied, in land occupations, and the value of victualling in marine occupations,§ whereas the number of working hours and the hourly wage relate to all industrial classes other than

† Details with respect to particulars in industrial classes have been published as follows:—To 30th April, 1914 (Labour Report No. 5, pp. 49-50); to 31st March, 1915 (Labour Bulletin No. 9, pp. 72-3); to 30th June, 1915 (Labour Bulletin No. 10, pp. 175-6); to 30th September, 1915 (Labour Bulletin No. 11, pp. 264-5); to 31st December, 1915 (Labour Bulletin No. 12, pp. 413-4); to 31st March, 1916 (Labour Bulletin No. 13, pp. 81-2); to 30th June, 1916 (Labour Bulletin No. 14, pp. 189-90); to 30th September, 1916 (Labour Bulletin No. 15, pp. 299-300); to 31st December, 1916 (Labour Report No. 7, pp. 423-4); to 31st March, 1917 (Labour Bulletin No. 17, pp. 70-1); to 30th June, 1917 (Labour Bulletin No. 18, pp. 170-1) and to 31st December, 1917 (Labour Report No. 8, pp. 76-7.) § See footnote to previous table. The value of victualling in ships has been assessed by the Commonwealth Arbitration Court at 45s. per month.

Groups XI. (Shipping), and XII. (Agricultural, Pastoral, etc.). Owing to the fact that many of the occupations included in these two groups are of a casual or seasonal nature, and that the hours of labour in these occupations are not generally regulated either by awards or determinations of industrial tribunals or otherwise, the necessary data for the computation of the average number of working hours are not available.

The general effect of reducing the rates of wage to a common basis (i.e., per hour) is to decrease the amount of the difference shewn when comparing the weekly wage in the several States.

**WEIGHTED AVERAGE NOMINAL WEEKLY AND HOURLY RATES OF WAGE PAYABLE TO ADULT WORKERS, AND WEEKLY HOURS OF LABOUR, 30th APRIL, 1914, 31st DECEMBER, 1914, 1915, 1916, and 1917.**

Date.	Particulars.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'with.
<b>MALE WORKERS.</b>								
30th April, 1914.	Weekly Wage*...	s. d. 55 9	s. d. 54 3	s. d. 52 8	s. d. 54 4	s. d. 62 2	s. d. 52 6	s. d. 55 1
	Working Hours†	49.42	48.80	48.78	48.60	47.78	48.62	48.93
	Hourly Wage†	13.93d.	13.68d.	13.45d.	13.84d.	16.33d.	13.02d.	13.96d.
31st Dec., 1914.	Weekly Wage*...	s. d. 56 2	s. d. 54 7	s. d. 53 5	s. d. 54 5	s. d. 62 10	s. d. 52 8	s. d. 55 7
	Working Hours†	49.35	48.66	48.64	48.59	48.18	48.62	48.87
	Hourly Wage†	14.11d.	13.82d.	13.75d.	13.86d.	16.37d.	13.07d.	14.09d.
31st Dec., 1915.	Weekly Wage*...	s. d. 57 7	s. d. 55 3	s. d. 54 4	s. d. 54 8	s. d. 63 4	s. d. 53 2	s. d. 56 6
	Working Hours†	49.28	48.50	48.56	48.50	48.12	48.56	48.77
	Hourly Wage†	14.50d.	14.05d.	14.07d.	13.98d.	16.50d.	13.20d.	14.38d.
31st Dec., 1916.	Weekly Wage*...	s. d. 61 11	s. d. 58 10	s. d. 60 4	s. d. 59 0	s. d. 65 2	s. d. 57 0	s. d. 60 8
	Working Hours†	48.51	48.22	48.27	48.14	48.11	48.55	48.33
	Hourly Wage†	15.73d.	14.99d.	15.32d.	15.01d.	16.84d.	14.11d.	15.43d.
31st Dec., 1917.	Weekly Wage*...	s. d. 64 5	s. d. 63 0	s. d. 65 3	s. d. 63 1	s. d. 68 11	s. d. 59 7	s. d. 64 2
	Working Hours†	48.41	48.14	47.19	47.82	48.10	48.48	48.10
	Hourly Wage†	16.22d.	15.89d.	16.88d.	15.98d.	17.49d.	15.06d.	16.25d.

**FEMALE WORKERS.**

30th April, 1914.	Weekly Wage ...	s. d. 26 9	s. d. 27 4	s. d. 26 11	s. d. 24 1	s. d. 37 4	s. d. 25 10	s. d. 27 2
	Working Hours	49.34	48.54	49.32	49.33	48.69	50.76	49.08
	Hourly Wage ...	6.51d.	6.78d.	6.48d.	5.85d.	9.20d.	6.11d.	6.64d.
31st Dec., 1914.	Weekly Wage ...	s. d. 26 10	s. d. 27 9	s. d. 27 1	s. d. 24 1	s. d. 37 4	s. d. 25 10	s. d. 27 5
	Working Hours	49.34	48.54	49.82	49.33	49.44	50.76	49.11
	Hourly Wage ...	6.53d.	6.87d.	6.53d.	5.85d.	9.06d.	6.11d.	6.70d.
31st Dec., 1915.	Weekly Wage ...	s. d. 27 5	s. d. 26 11	s. d. 26 11	s. d. 24 6	s. d. 37 5	s. d. 28 0	s. d. 27 4
	Working Hours	49.45	48.46	49.84	49.35	49.86	50.14	49.12
	Hourly Wage ...	6.53d.	6.87d.	6.48d.	5.96d.	9.01d.	6.71d.	6.68d.
31st Dec., 1916.	Weekly Wage ...	s. d. 28 7	s. d. 28 5	s. d. 27 3	s. d. 24 10	s. d. 38 10	s. d. 28 3	s. d. 28 5
	Working Hours	49.44	48.36	49.85	49.02	49.08	49.83	49.02
	Hourly Wage ...	6.93d.	7.06d.	6.58d.	6.08d.	9.50d.	6.82d.	6.96d.
31st Dec., 1917.	Weekly Wage ...	s. d. 30 5	s. d. 30 4	s. d. 30 5	s. d. 27 9	s. d. 38 10	s. d. 28 5	s. d. 30 5
	Working Hours	48.98	48.32	48.99	48.73	48.78	49.83	48.71
	Hourly Wage ...	7.45d.	7.53d.	7.45d.	6.82d.	9.56d.	6.83d.	7.50d.

\* Weighted average weekly wage in all industrial classes combined. † Weighted average working hours per week, and computed hourly rates of wage for all industrial classes excepting Classes XI. (Shipping, etc.), and XII. (Agricultural, Pastoral, etc.). Working hours have not been generally regulated by industrial tribunals for occupations classified in industrial Classes XI. and XII.

From the foregoing table it may be seen that, with the exception of Western Australia, there has been a diminution in the number of working hours constituting a full week's work in both male and female occupations. The effect of these changes on the hourly rate of wage as compared with the general increase in the weekly wage is readily seen from the comparative index-numbers given in the following table. In each instance (male and female occupations separately) the basis taken is the weighted average for the Commonwealth at the 30th April, 1914, as base (= 1000).

**RELATIVE INDEX-NUMBERS FOR WEEKLY AND HOURLY WEIGHTED AVERAGE  
WAGE, 30th APRIL, 1914, 31st DECEMBER, 1914, 1915, 1916 and 1917.**

NOTE.—Weighted Average for the Commonwealth at 30th April, 1914, as base (=1000).

Date.	Particulars.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'w'lth
<b>MALE WORKERS.</b>								
30th April, 1914 ...	Weekly Wage ...	1,011	984	955	986	1,128	952	1,000
	Hourly Wage ...	998	980	963	991	1,170	933	1,000
31st Dec., 1914 ...	Weekly Wage ...	1,019	990	969	988	1,140	956	1,008
	Hourly Wage ...	1,010	990	985	993	1,173	936	1,009
31st Dec., 1915 ...	Weekly Wage ...	1,044	1,002	986	992	1,149	965	1,023
	Hourly Wage ...	1,039	1,006	1,008	1,001	1,182	946	1,030
31st Dec., 1916 ...	Weekly Wage ...	1,123	1,067	1,035	1,071	1,182	1,034	1,100
	Hourly Wage ...	1,127	1,074	1,097	1,075	1,206	1,011	1,105
31st Dec., 1917 ...	Weekly Wage ...	1,168	1,143	1,183	1,144	1,250	1,081	1,164
	Hourly Wage ...	1,162	1,138	1,209	1,145	1,252	1,079	1,164

**FEMALE WORKERS.**

30th April, 1914 ...	Weekly Wage ...	984	1,006	989	885	1,373	950	1,000
	Hourly Wage ...	980	1,021	976	881	1,386	920	1,000
31st Dec., 1914 ...	Weekly Wage ...	987	1,022	995	885	1,373	950	1,008
	Hourly Wage ...	983	1,035	983	881	1,364	920	1,009
31st Dec., 1915 ...	Weekly Wage ...	1,007	990	990	901	1,376	1,031	1,005
	Hourly Wage ...	1,002	1,005	976	898	1,357	1,011	1,006
31st Dec., 1916 ...	Weekly Wage ...	1,050	1,047	1,004	915	1,429	1,041	1,047
	Hourly Wage ...	1,044	1,063	991	916	1,431	1,027	1,048
31st Dec., 1917 ...	Weekly Wage ...	1,119	1,116	1,120	1,020	1,430	1,045	1,121
	Hourly Wage ...	1,122	1,134	1,122	1,027	1,440	1,029	1,130

7. Rates of Wage of Adult Males and Females.—In the tabular statement on pages 1110 *et seq.* particulars are shewn for adult males and females separately of the minimum rates of wage fixed by awards, determinations, or agreements, at 31st December, 1917. (See § 5, 1.)

# **MINIMUM RATES OF WAGE FOR ADULT MALE WORKERS IN THE MAIN OCCUPATIONS IN THE CAPITAL TOWN OF EACH STATE FOR A FULL WEEK'S WORK, AT 31st DECEMBER, 1917.**

NOTE.—Ruling or predominant rates of wage are distinguished from Award, Determination, or Industrial Agreement rates of wage by an asterisk (\*). Except where otherwise specified by a numerical prefix in small type, the hours of labour constituting a full week's work are forty-eight. Award, Determination, or Agreement rates are quoted from the latest Awards, Determinations, or Agreements made, but which were not invariably in force on the 31st December, 1917. It is found, however, that in those States in which Awards, Determinations, or Industrial Agreements are made for a specified period, that pending further review of the rates of wage and hours of labour, those previously determined or agreed upon are usually maintained. Where two or more Award, Determination, or Agreement rates are quoted, the reason for such is that different rates of wage have been fixed for various classes or grades of work. It will be seen that in certain cases of this nature the wages are shewn in the form, say, 50s. to 57s., indicating that in addition to the two rates specified, there are also certain intermediate rates in force. In other cases the rates are shewn in the form 54s. and 60s., indicating that there are only two minimum or standard rates in force for different classes and grades of work, and that there are, of course, no intermediate minimum or standard rates.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
<b>GROUP I.—WOOD, FURNITURE, SAWMILL AND TIMBER YARD.</b>						
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
<b>Coopering</b>						
Coopers ... ..	80 0	80 0	*75 0 to 85 0	66 0	80 0	80 0*
<b>Furniture and Bedding.</b>						
Bedding Makers ... ..	63 0	60 0	*66 0	62 6	69 0	52 6
Boult's Carver Operator ... ..	*69 0	69 0	*71 6	*65 0	78 0	66 0
Cabinet Makers ... ..	67 0	65 0	*71 6	65 0	72 0	60 0
Carpet Cutters ... ..	84 0	70 0	...	...	...	60 0
„ Layers ... ..	70 0	65 0	40 0 to 63 0	*56 0	...	60 0
„ Planners ... ..	70 0	70 0	...	...	...	60 0
Chair Makers ... ..	67 0	65 0	*71 6	65 0	72 0	60 0
Drape Cutters ... ..	84 0	65 0	...	...	...	...
French Polishers ... ..	67 0	65 0	*67 10	65 0	69 0	60 0
Upholsterers ... ..	67 0	65 0	*67 10	65 0	69 0	60 0
Wood Carvers ... ..	67 0	65 0	*71 6	65 0	78 0	60 0
„ Machinists ... ..	67 0	63 0	*62 4 to 71 6	65 0	75 0	54 0 to 60 0
„ Turners ... ..	67 0	65 0	*71 6	65 0	72 0	60 0
<b>Mattress Making (Wire).</b>						
Finishers ... ..	57 6	58 0	*66 0	48 0	...	52 6
Makers ... ..	57 6	58 0	*66 0	50 0	69 0	52 6
Varnishers ... ..	57 6	58 0	*66 0	43 0	...	52 6
<b>Organ Building.</b>						
Journeymen ... ..	80 0	58 0	*60 0 to 72 6	*60 0	...	...
<b>Overmantels and Mantelpieces.</b>						
Journeymen ... ..	67 0	65 0	62 4 to 71 6	65 0	...	60 0

Various numbers of hours constituting a full week's work.

(1) 18 hours. (1a) 15 hours. (2) 30 hours. (3) 33 hours. (4) 36 hours. (4a) 41½ hours. (4b) 40 hours. (5) 42 hours. (5a) 43 hours. (5b) 43½ hours. (5c) 43¾ hours. (6) 44 hours. (7) 44½ hours. (8) 45 hours. (9) 45½ hours. (10) 46 hours. (10 a) 46½ hours. (11) 46¾ hours. (12) 47 hours. (12a) 47½ hours. (13) 47¾ hours. (14) 49 hours. (15) 49½ hours. (16) 49¾ hours. (17) 50 hours. (18) 51 hours. (18a) 51½ hours. (19) 52 hours. (20) 52½ hours. (21) 52¾ hours. (22) 53 hours. (23) 53½ hours. (24) 53¾ hours. (25) 54 hours. (26) 54½ hours. (26a) 54¾ hours. (27) 55 hours. (27a) 55½ hours. (28) 56 hours. (29) 56½ hours. (30) 57 hours. (31) 58 hours. (32) 59 hours. (33) 60 hours. (33a) 60½ hours. (34) 63 hours. (35) 65 hours. (36) 70 hours. (37) 72 hours. (38) 77 hours. (38a) 88 hours per fortnight. (38b) 86 hours per fortnight. (39) 7 nights. (39a) 96 hours per fortnight. (39b) 98 hours per fortnight. (39c) 112 hours per fortnight. (40) 116 hours per fortnight. (41) 136 hours per fortnight. (42) 144 hours per fortnight. (42a) 156 hours per fortnight. (43) 50 hours (summer). 46 hours (winter). (43a) 50 hours (summer). 48 hours (winter). (44) 52 hours (summer). 45 hours (winter). (44a) 52 hours (day). 48 hours (night). (45) 54 hours (summer). 48 hours (winter). (46) 54½ hours (summer). 52½ hours (winter). (47) 55 hours (summer). 46 hours (winter). (47a) 55 hours (summer). 50 hours (winter). (47b) 55 hours (summer). 52 hours (winter). (48) 55 hours (summer). 54 hours (winter). (48a) 56 hours (summer). 44 hours (winter). (49) 56 hours (summer). 48 hours (winter). (49a) 56 hours (summer). 52 hours (winter). (49b) 56 hours (summer). 53 hours (winter). (50) 57 hours (summer). 44 hours (winter). (50a) 57 hours (summer). 48 hours (winter). (50b) 57 hours (summer). 52½ hours (winter). (51) 58 hours (summer). 46 hours (winter). (52) 58 hours (summer). 50 hours (winter). (53) 58 hours (summer). 56 hours (winter). (54) 59 hours (summer). 59 hours (winter). (55) 60 hours (summer). 56 hours (winter). (56) 60 hours (summer). 58 hours (winter). (57) 84 hours and 72 hours alternate weeks. (58) 48 hours. 51 hours. 54 hours four months each in each year. (59) 56 hours and 59 hours within certain radius. (60) 56 hours and 60 hours within certain radius. (61) 58 hours (summer). 54 hours (winter).

## WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP I.—WOOD, FURNITURE, SAWMILL AND TIMBER YARD—Continued.						
<b>Piano Making.</b>	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Cabinet Makers ...	67 0	65 0	60 0	*65 0	...	...
			to 72 6			
Framemakers, Iron	72 0	66 0	...	...	...	...
Wood	67 0	65 0	...	...	...	...
French Polishers ...	67 0	65 0	67 6	*65 0	...	...
Veneerers ...	67 0	50 0	72 6	...	...	...
		& 60 0				
Wood Carvers ...	67 0	60 0	...	*65 0	...	...
Turners ...	67 0	60 0	...	*65 0	...	...
<b>Picture Framing.</b>						
Compo. Workers ...	58 0	53 0	...	...	...	...
Fitters Up ...	56 0	53 0	...	*60 0	17 55 0*	...
General Hands ...	55 0	52 0	*50 0	*50 0	17 50 0*	12 50 0*
			to 55 0*	to 60 0		to 60 0
Gilders ...	65 0	57 6	...	*60 0	...	...
Joiners ...	65 0	57 6	*53 0	*60 0	17 60 0*	...
			to 63 0	to 70 0		
Mount Cutters ...	65 0	57 6	*53 0	*60 0	17 60 0*	...
			to 63 0	to 70 0		
Sawyers (Band or Jig)	58 0	58 0	*57 0	*60 0	...	...
		& 64 0		to 65 0		
<b>Saw Milling and Timber Yards.</b>						
Box and Case Makers	66 0	62 0	64 0	57 0	...	...
Labourers...	60 6	57 0	63 0	54 0	57 6	55 6
<b>Machinists—</b>						
Box Printing ...	60 6	59 0	65 0	55 6	...	60 0
Boults Carver ...	75 0	71 0	70 0	*69 0	...	72 0
Buzzer or Jointer	69 0	65 0	65 0	63 0	60 6	63 0
General Jointer ...	75 0	68 0	...	*69 0	75 6	72 0
Mortising or Boring	61 6	60 0	65 0	60 0	60 6	60 0
Moulding ...	68 0	65 0	70 0	63 0	63 6	63 0
					& 69 6	& 67 6
own Grinder	74 0	70 0	...	67 6	...	72 0
Nailing ...	60 6	62 0	64 0	55 6	...	60 0
Planing...	66 0	65 0	65 0	58 6	75 6	63 0
Sandpapering ...	62 6	61 0	65 0	60 0	60 0	63 0
					& 63 6	
Shaping ...	75 0	71 0	84 0	63 0	78 6	72 0
Tenoning ...	69 0	65 0	65 0	60 0	63 6	63 0
Ordermen...	64 6	63 0	66 0	60 0	*66 6	61 6
Pullers or Tailers Out	60 6	54 0	63 0	54 0	60 6	57 0
		& 58 0		& 57 0		& 58 6
Saw Doctors ...	84 0	77 0	80 0	75 0	*80 0	75 0
Saw Sharpeners ...	72 0	65 0	71 0	66 0	*72 0	63 0
Sawyers—Band or Jig	74 0	63 0	73 0	60 0	66 6	64 6
		& 68 0				
„ Circular...	60 6	62 0	69 0	60 0	63 6	60 0
	to 72 0	& 65 0		& 66 0	& 69 6	to 66 0
„ Gang Frame	62 6	63 0	66 0	69 0	66 6	61 6
		& 65 0				
„ Re-Cut Band	60 6	63 0	70 0	69 0	66 6	64 6
	to 72 0	to 69 0				
Stackers ...	*77 0	63 0	*73 4	*77 0	60 6	55 6
Tallymen ...	64 6	63 0	69 0	60 0	60 6	60 0
Wood Turners ...	75 6	67 0	73 0	65 0	72 0	63 0
<b>Undertaking.</b>						
Coachmen ...	24 62 6	19 56 0	†62 6	17 55 0	28 60 0	*50 0
Coffin Makers or Trimmers	72 0	60 0	†62 6	64 0	†60 0	*50 0
		& 64 0			& 70 0	
<b>Venetian Blind Making.</b>						
Journeymen ...	63 0	*54 0	*66 0	*50 0	...	57 0
	& 65 0	to 60 0				



## WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP II.—ENGINEERING, METAL WORKS, ETC.						
<b>Agricultural Implements.</b>	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Assemblers ...	60 6	57 0	*55 0 to 60 0	57 0	57 0 & 58 6	...
Blacksmiths ...	68 0	66 0	...	66 0	69 0 to 78 0	...
Bulldozermen ...	59 0	63 0	...	63 0	69 0	...
Carpenters ...	67 6	66 0	...	66 0	...	...
Drillers ...	59 0	56 0	...	56 0	57 0 to 60 0	...
Engine Drivers ...	67 0 & 71 6	57 0 to 69 0	...	60 0	...	...
Fitters ...	62 0 to 68 0	60 0 & 66 0	...	66 0	72 0	...
Grinders ...	59 0	59 0	...	56 0	...	...
Labourers (Unskilled)	57 0	54 0	...	54 0	54 0	...
Machinists, Iron ...	59 0 to 68 0	60 0	...	57 0 & 60 0	...	...
„ Wood ...	59 0 to 68 0	63 0	...	57 0 & 60 0	...	...
Painters (Brush) ...	60 6	56 0	...	56 0	...	...
„ (Scroll) ...	67 6	66 0	...	66 0	...	...
Patternmakers ...	76 0	72 0	...	72 0	81 0	...
Sheet Iron Workers	59 0	60 0	...	60 0	...	...
Storemen ...	58 6	54 0	10 60 0	54 0	...	...
Strikers ...	60 6	57 0	...	57 0	57 0 to 60 0	...
Turners ...	68 0	66 0	...	66 0	72 0	...
Wheelwrights ...	67 6	66 0	...	66 0	...	...
<b>Bedstead Making (Metallic).</b>						
Blacksmiths ...	57 0 to 69 0	62 0	60 6	72 0	...	...
Chillfitters (Modellers)	*67 6	77 0	74 3	*60 0	...	...
„ (Other) ...	65 0	65 0	57 9 to 66 0	56 0	...	...
Chippers ...	61 0	59 0	56 3	43 0	...	...
Cutters, etc. ...	61 0	60 0	56 3	48 0	...	...
Electroplaters ...	65 0	73 0	*60 0	63 0	...	...
Fitters-up ...	62 0	62 0 & 65 0	57 9	51 0	...	...
Foundry Hands ...	61 0	60 0	54 0 & 56 3	*58 6	...	...
Frame Setters ...	64 0	63 0	63 3	54 0	...	...
Furnacemen ...	65 0	60 0	58 6	*60 0	...	...
Japanners ...	60 6	62 0	55 0	43 0 & 51 0	...	...
Lacquers ...	64 0	60 0	55 0	48 0	...	...
Mounters ...	60 6	62 0	55 0 & 51 0	43 0	...	...
Polishers ...	61 0	60 0	49 6	48 0	...	...
<b>Boiler Making.</b>						
Journeyman ...	78 0	77 0	*71 6 & 77 0	75 0	72 0	69 0
Railway Men ...	78 0	*66 0 to 75 0	81 0	75 0 to 81 0	*72 0	69 0 to 72 0

See also explanatory notes on page 1110.

## WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP II.—ENGINEERING, METAL WORKS, ETC.—Continued.						
<b>Brass Working.</b>	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Coremakers ...	68 0	63 0	*71 6	48 0	72 0	...
	& 72 0					
Dressers ...	59 0	57 0	*55 0	43 0	72 0	...
Finishers ...	70 0	69 0	*71 6	*75 0	72 0	51 0
Furnacemen ...	63 0	59 6	*62 4	43 0	66 0	42 0
Moulders ...	68 0	69 0	*71 6	60 0	72 0	60 0
	& 72 0					
Polishers ...	60 0	62 0	*71 6	45 0	...	...
<b>Cycles and Motors.</b>						
Assemblers ...	58 0	61 0	*50 0	*50 0	*58 6	52 0
		& 63 6		to 70 0		
Cleaners ...	56 0	61 0	...	*50 0	...	52 0
Filers ...	53 0	61 0	*65 0	*50 0	*57 0	52 0
Fitters ...	60 0	63 6	*65 0	*50 0	...	65 0
			to 65 0	to 75 0		
Frame Builders ...	56 0	61 0	...	*50 0	...	55 0
	& 60 0	& 66 0		to 65 0		
Repairers ...	56 0	61 0	...	*50 0	...	50 0
	& 60 0	& 63 6		to 70 0		& 52 0
Turners (Cycle) ...	60 0	...	...	75 0	...	65 0
„ (Motor) ...	70 0	73 6	...	75 0	...	65 0
Wheel Builders ...	53 0	61 0	*50 0	...	...	55 0
<b>Electrical Installation.†</b>						
Armature Winders ...	82 0	66 0	84 0	72 0	75 6	69 0
Cable Jointers ...	82 0	81 0	81 0	72 0	...	66 0
Fitters ...	82 0	66 0	84 0	72 0	75 6	69 0
Linesmen ...	74 0	74 0	72 0	70 0	66 6	57 0
						& 62 0
Mechanics ...	74 0	74 0	81 0	70 0	75 6	69 0
Patrolmen ...	...	63 0	...	70 0	...	66 0
Wiremen ...	74 0	74 0	72 0	65 0	69 6	60 0
„ Assistant ...	...	63 0	60 0	...	...	54 0
Other Adults ...	...	63 0	60 0	54 0	57 6	54 0
<b>Electrical Supply.</b>						
Armature Winders ...	82 0	67 0	84 0	72 0	75 6	69 0
Cable Jointers ...	82 0	70 0	81 0	72 0	...	66 0
Carboner (Arc Lamp Attend.)	62 0	60 0	66 0	60 0	...	60 0
Instrument Makers ...	70 0	67 0	84 0	70 0	75 6	69 0
Linesmen ...	74 0	65 0	72 0	64 0	66 6	57 0
						& 62 0
Meter Fixers ...	*78 0	60 0	...	60 0	...	54 0
„ Testers ...	72 0	67 0	84 0	66 0	...	69 0
Patrolmen (Night) ...	*67 0	70 0	...	70 0	...	66 0
Shift Electricians ...	82 0	70 0	74 0	...	...	...
			to 88 0			
Sub-Station Attendants ...	...	64 0	...	...	...	68 0
Switchboard Attendants ...	60 0	58 0	60 0	58 0	...	56 0
Switchmen ...	...	56 6	...	64 0	...	...
Other Adults ...	*62 0	55 0	60 0	54 0	...	54 0
<b>Electrical Trades.</b>						
Fitters ...	82 0	66 0	84 0	72 0	75 6	69 0
Mechanics ...	74 0	63 0	81 0	70 0	75 6	69 0
Wiremen ...	74 0	63 0	72 0	65 0	69 6	60 0

† In Melbourne the current Wages Board Determination provides for special rates for night shifts.  
See also explanatory notes on page 1110.

## WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP II.—ENGINEERING, METAL WORKS, ETC.—Continued.						
<b>Electroplating.</b>	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Makers-up ...	64 0	55 0	...	*58 0	...	...
Platers ...	70 0	72 0	60 6	66 0	66 0	60 0
Polishers ...	64 0	63 0	52 3	*54 0	...	...
	& 66 0					
<b>Engineering.†</b>						
Blacksmiths ...	80 0	77 0	75 2	72 0	81 6	69 0
Bolt and Nut Machinists ...	62 0	62 0	...	*66 0	*63 6	...
Borers and Slotters ...	68 0	77 0	66 0	66 0	69 6	69 0
	& 76 0			& 72 0		
Brass Finishers ...	78 0	69 0	71 6	60 0	75 6	69 0
Coppersmiths ...	80 0	77 0	75 2	69 0	81 6	69 0
Drillers (Radial) ...	*76 0	*62 0	60 6	58 0	*63 6	69 0
„ (Other) ...	59 0	62 0	60 6	58 0	63 6	69 0
Drophammer Smiths ...	74 0	77 0	71 6	...	81 6	...
Fitters ...	78 0	77 0	71 6	75 0	75 6	69 0
Lappers and Grinders ...	59 0	65 0	71 6	72 0	...	...
Millers (Universal) ...	*76 0	77 0	...	75 0	75 6	69 0
„ (Other) ...	68 0	65 0	71 6	72 0	69 6	69 0
	& 76 0					
Oliversmiths ...	74 0	77 0	71 6	...	81 6	...
Pattern Makers ...	82 0	83 0	77 0	78 0	84 6	69 0
Planers (Rail and Plate Edge) ...	68 0	65 0	60 6	60 0	69 6	...
	& 76 0					
„ (Other) ...	68 0	77 0	66 0	66 0	69 6	69 0
	& 76 0					
Shapers ...	68 0	65 0	66 0	66 0	69 6	69 0
	& 76 0	& 77 0				
Springsmiths ...	72 0	77 0	...	*66 0	81 6	...
Turners ...	78 0	77 0	71 6	75 0	75 6	69 0
<b>Farriery.</b>						
Firemen ...	76 0	72 0	1260 0	69 0	*66 0	*45 0
Floormen ...	70 0	67 0	1260 0	63 0	*60 0	*40 0
Shoemsmiths ...	76 0	72 0	1260 0	69 0	*66 0	*45 0
<b>Ironworkers' Assistants.</b>						
Boilermakers' Helpers ...	57 0	58 0	55 0	51 0	57 0	54 0
					to 60 0	
„ Labourers ...	54 0	52 0	55 0	51 0	54 0	48 0
Engineers' Labourers ...	54 0	52 0	55 0	51 0	57 0	48 0
Furnacemen's Assistant ...	57 0	55 0	55 0	50 0	*57 6	...
General Labourers ...	54 0	48 0	55 0	51 0	54 0	48 0
					to 60 0	
Moulders' „ ...	54 0	48 0	55 0	48 0	54 0	48 0
Strikers ...	59 0	54 0	55 0	51 0	57 0	54 0
<b>Moulding, Iron.</b>						
Coremakers (Machine) ...	72 0	65 0	71 6	72 0	66 0	66 0
„ (Other) ...	72 0	71 0	71 6	72 0	66 0	66 0
		to 77 0				
Dressers and Fettlers ...	56 0	61 6	55 0	57 0	*60 6	48 0
Furnacemen ...	62 0	63 0	62 4	64 0	*69 6	48 0
	& 68 0					
Moulders (Machine) ...	68 0	65 0	71 6	63 0	66 0	66 0
„ (Other) ...	72 0	71 0	71 6	72 0	66 0	66 0
		to 77 0				

† In Melbourne the current Wages Board Determination provides for special rates of wage for night shifts. See also explanatory notes on page 1110.

## WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP II.—ENGINEERING, METAL WORKS, ETC.—Continued.						
<b>Moulding, Piano Frames.</b>	s. d. 67 0 & 71 0	s. d. 71 0	s. d. ...	s. d. ...	s. d. ...	s. d. ...
<b>Moulding, Pipe (Bank).</b>						
Casters and Finishers ...	60 0	62 0	...	*72 0	66 0 to 84 0	...
Coremakers ...	60 0	71 0 to 77 0	...	*72 0	60 0	...
Footmen (4-in. and under) ...	66 0	65 0	*60 6	*69 0	66 0	...
„ (5 and 6-in.) ...	68 0	68 0	*60 6	*69 0	72 0	66 0
Headmen (4-in. and under) ...	72 0	71 0	*66 0	*72 0	72 0	...
„ (5 and 6-in.) ...	74 0	77 0	*66 0	*72 0	78 0	66 0
<b>Moulding, Pipe (Machine).</b>						
Coremakers (Faucet) ...	60 0	71 0 to 72 0	...	...	...	...
„ (Spigot) ...	60 0	65 0 to 68 0	...	...	...	...
Finishers and Casters ...	60 0	71 0 to 77 0	*57 9	...	...	...
<b>Moulding, Pipe (Vertical).</b>						
Casters ...	60 0	62 0	*57 9	...	69 6	66 0
Coremakers ...	60 0	62 0	*49 6	*72 0	69 6	66 0
Corers ...	60 0	62 0	*57 9	...	63 6	...
Rammers ...	60 0	62 0	*52 3	*69 0	69 6	66 0
<b>Moulding, Steel.</b>						
Coremakers ...	72 0	65 0 to 77 0	...	72 0	*75 6	...
Moulders ...	72 0	65 0 to 77 0	*71 6	68 0 & 72 0	*75 6	...
<b>Moulding, Stove.</b>						
Moulders ...	67 0 & 71 0	71 0	*60 6	60 0	*672 0	...
<b>Ovenmaking.</b>						
Blacksmiths ...	65 0	61 0	...	52 0	*60 0 to 72 0	...
Grinders and Polishers ...	64 0 & 65 0	63 0	*55 0	54 0	*60 0 to 66 0	...
Ovenmakers ...	67 0 & 71 0	65 0	*60 6	52 0	*60 0 to 72 0	...
<b>Sheet Metal Working.</b>						
Canister Makers ...	54 0	56 0 & 63 0	64 0	63 0	57 6	...
Japanners (Coating or Brush-work) ...	...	56 0	66 0	56 0	...	...
Japanners (Grainers, Liners, etc.) ...	...	60 0	66 0	60 0	...	...
Japanners (Ornamental) ...	...	66 0	66 0	66 0	...	...
Machinists ...	54 0 & 56 0	62 0	66 0	56 0 & 62 0	57 6	...
Solderers ...	54 0	59 0 & 63 0	66 0	55 0	57 6	51 0
Tinsmiths ...	66 0	66 0	66 0	66 0	68 0	*57 0
<b>Wireworking (Barbed Wire).</b>						
Toolsharpener or Machinist	66 0	57 0	...	*54 0	...	...

## WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
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## GROUP II.—ENGINEERING, METAL WORKS, ETC.—Continued.

	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
<b>Galvanizing.</b>						
Galvanizers ...	63 0	66 0	80 0	*60 0	...	...
Picklers ...	63 0	61 0	66 0	*60 0	...	...
„ (Assistant)	63 0	56 0	...	...	...	...
<b>Nailmaking.</b>						
Case Wires	59 0	51 0	...	*54 0	...	...
Labourers	57 0	51 0	...	*54 0	...	...
Setters Up	66 0	60 0	...	*54 0	...	...
				to 65 0		
Storemen ...	57 0	56 0	...	*54 0	...	...
Toolmakers	78 0	63 0	...	*57 0	...	...
<b>Wire Netting Working.</b>						
Hand-Loom Weavers	64 0	57 6	...	50 0	...	...
Power-Loom „	55 6	57 6	...	50 0	...	...
Strikers ...	48 0	48 0	...	...	...	...
<b>Wire Working.</b>						
Journeymen	64 0	63 0	...	45 0	*60 0 to 65 0	*60 0

## GROUP III.—FOOD, DRINK, TOBACCO, ETC.

	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
<b>Aerated Waters and Cordials.</b>						
Bottlers ...	60 0	54 0	*60 0	54 0	58 0	45 0
Bottle Washers	58 0	50 0	*40 0	54 0	54 0	*45 0
			to 48 0			
Drivers (Motor)	61 0	66 0	65 0	65 0	...	66 0
„ (One Horse)	& 63 0 56 0	1761 0	& 69 0 1961 0	& 70 0 4861 0	59 0	61 0
„ (Two Horses)	61 0	1766 0	1966 0	4864 0	59 0	66 0
Grooms or Stablemen†	56 0 & 58 0	1860 0	2860 0	4860 0	2854 0	1860 0
Loaders ...	58 0	50 0	*61 0	54 0	54 0	45 0
Packers ...	58 0	50 0	*61 0	54 0	58 0	45 0
Wires ...	58 0	50 0	...	54 0	54 0	45 0
					& 58 0	
<b>Baking (Bread)</b>						
Board Hands	70 0	76 0	867 6 & 70 0	67 6	67 6	60 0
Carters (One Horse)	2560 0	2560 9	1761 0	2560 0	2560 0	1761 0
„ (Two Horses)	2560 0	2560 9	1766 0	2560 0	2560 0	1766 0
Doughmen	72 6 & 75 0	76 0	872 6	67 6	67 6	60 0
Fore Hands	75 0 & 80 0	84 0	875 0 & 80 0	67 6	68 0	70 0
Ovenmen ...	75 0	76 0	870 0 & 75 0	67 6	68 0	60 0
Single Hands	75 0	84 0	875 0	67 6	68 0	65 0

† Hours quoted for Melbourne and Hobart came into force on 1st January, 1918.

See also explanatory notes on page 1110.

## WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP III.—FOOD, DRINK, TOBACCO, ETC.—Continued.						
<b>Baking (Biscuits and Cakes).</b>	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Adult Males ...	56 0	54 0	57 6	*58 0	*55 0	...
Bakers ...	67 6	60 0	67 6	*60 0 to 67 6	*60 0 to 70 0	57 6
Brakesmen ...	60 0	56 0	60 0	*55 0 to 60 0	*45 0 to 60 0	52 0
Mixers ...	60 0	60 0	67 6	*65 0	*55 0 to 65 0	60 0
Oven Firemen ...	56 0	56 0	60 0	*60 0 to 63 0	*55 0 to 60 0	57 6
Storemen ...	60 0	54 0	1263 6	*58 0	*60 0 to 65 0	...
<b>Brewing.</b>						
Adult Males ...	60 0	60 0	60 0	60 0	63 0	57 0
Bottle Packers ...	60 0	60 0	60 0	60 0	63 0	57 0
Bottlers and Washers ...	60 0	60 0	60 0	60 0	63 0	57 0
Cellarmen ...	63 0	63 0	63 0	63 0	63 0	60 0
Drivers (One Horse)†	1960 0	1160 0 & 61 0	1961 0	1760 0	63 0	1757 0 & 61 0
„ (Two Horses)‡	1963 0	1160 0 & 66 0	1966 0	1763 0	63 0	1757 0 & 66 0
„ (Motor under 3 tons)†	1963 0	163 0 to 70 0	65 0 to 70 0	1763 0	...	60 0 to 70 0
„ ( „ 3 tons & over)	1966 0	166 0 & 74 0	73 0 & 75 0	1766 0	70 6 & 73 0	63 0 & 74 0
Engine Drivers ...	72 0	66 0 & 78 0	68 0 to 84 0	72 0	*75 0	*72 0
Firemen ...	69 0	60 0 & 66 0	66 0	66 0	66 0	*63 0
Greasers and Trimmers ...	60 0	54 0	60 0 & 66 0	60 0	*66 0	...
Malt Hands ...	63 0	63 0	63 0	63 0	63 0	57 0
Stablemen and Grooms ...	1960 0	1560 0	2860 0	1760 0	2863 0	1860 0
Towermen ...	63 0	63 0	63 0	63 0	63 0	57 0
<b>Butchering (Carcase).</b>						
Carters (One horse)...	2562 6	...	60 0	1761 0	3370 0	2547 0
„ (Two horses)	2570 0	1960 0	60 0	1764 0	3370 0	2552 0
Chilling Room Hands	60 0 & 72 0	66 0	65 0	...	1960 0	...
Labourers (Beef) ...	72 0	1260 0	57 6	1260 0	60 0	52 6
„ (Mutton)	60 0	1260 0	57 6	1260 0	60 0	52 6
Scalders ...	60 0 & 72 0	70 0	65 0	772 6	1970 0	2752 6
Slaughtermen (Beef)§	100 0	1280 0	77 6	787 6	80 0	52 6 & 65 0
„ (Mutton)	†	1280 0	77 6	785 0	80 0	52 6 & 65 0
<b>Butchering (Retail).§</b>						
Carters (Cash Cutting)	72 6	1970 0	70 0	...	1960 0	2560 0
„ (One Horse)	55 0	1960 0	57 6	1960 0	1950 0	2547 0
„ (Two Horses)	55 0	1960 0	60 0	1960 0	1950 0	2552 0
General Hands ...	60 0	70 0	65 0	70 0	1960 0	2557 6
Salts ...	72 6	70 0	65 0	70 0	1970 0	2557 6
Shopmen ...	65 0 & 72 6	70 0	65 0	70 0	2760 0 & 70 0	2557 6 to 65 0
Smallgoodsmen ...	72 6	70 0	65 0	70 0	1970 0	2565 0
„ (Assistant)	65 0	70 0	57 6	70 0	1960 0	2557 6

† Piece Work Rates. ‡ Hours quoted for Melbourne and Hobart came into force on 1st January, 1918; in Brisbane on 16th January, 1918. § Hobart rates from 12th January, 1918. ¶ 48 and 52 hours per week. See also explanatory notes on page 1110.

## WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP III.—FOOD, DRINK, TOBACCO, ETC.—Continued.						
<b>Butter Making.</b>	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Buttermaker ...	73 0	52 6	60. 0*	70 0*	...	...
Cream Grader ...	65 0	57 6	60 0*		...	...
Cream or Milk Tester ...	60 0	55 0	60 0*		...	...
Machinists (Milk, Drying, etc)	...	50 0	...	...	...	...
Machinists (Pasteurizer)	55 6	48 0	...	...	...	...
(Separator,						
Weighing, etc.)...	55 6	48 0	...	...	...	...
Other Adults ...	55 6	45 0	50 0*	*55 0	...	...
				to 60 0		
Storemen or Packers ...	55 6	48 0	...	58 0	...	...
<b>Cheesemaking.</b>						
Journeymen ...	...	25 54 0	...	*70 0	...	...
Other Adults ...	...	25 45 0	...	...	...	...
<b>Cold Storage and Ice.</b>						
Carters (Motor) ...	45 61 0	50 0	65 0	65 0	66 0	...
	& 63 0			& 70 0		
„ † (One Horse) ...	45 56 6	48 a 63 0	19 61 0	17 61 0	17 61 0	47 0
	& 58 6	& 65 0				
„ † (Two Horses) ...	45 59 0	48 a 68 0	19 66 0	17 64 0	17 66 0	52 0
	& 61 0	& 70 0				
Chamber Hands ...	64 0	72 0	46 62 6	*54 0	17 54 0*	*60 0
	& 67 0			to 60 0	to 60 0	
Pullers and Stackers ...	58 0	66 0	*61 0	*54 0	28 54 0*	*60 0
			to 64 0	to 60 0	to 60 0	
Rabbit Packers ...	60 0	62 0	...	...	...	*60 0
<b>Confectionery.†</b>						
Journeymen ...	60 0	72 0	65 0	60 0	60 0	*60 0
Labourers ...	54 0	54 0	57 6	50 0	50 0	...
Storemen (Head) ...	*54 0	68 0	65 0	56 0	60 0	...
	to 67 6		to 90 0			
„ (Other) ...	54 0	60 0	63 6	50 0	50 0	...
<b>Ham and Bacon Curing.</b>						
Casing Cleaners (Foreman) ...	66 0	68 0	*87 0	68 0	...	60 0
Curers (First Hand) ...	85 0	72 6	*87 0	72 6	...	57 6
„ (Assistant) ...	70 0	62 6	*70 0	62 6	...	...
Cutters-up (First Hand) ...	72 6	72 6	*81 0	72 6	...	52 6
„ (Assistant) ...	65 0	65 0	*72 0	65 0	...	52 6
Ham Baggers ...	...	56 0	*75 0	56 0	...	...
Lardmen ...	60 0	56 0	*75 0	56 0	...	52 6
		& 67 6		& 67 6		
Rollers and Trimmers ...	65 0	65 0	*66 0	65 0	...	52 6
Scalders ...	60 0	65 0	*77 6	65 0	56 0	52 6
Shavers ...	60 0	65 0	*66 0	65 0	...	52 6
Slaughtermen ...	100 0	72 6	*87 0	72 6	56 0	55 0
„ (Assistant) ...	80 0	65 0	*81 0	65 0	...	52 6
Smallgoodsmen (First Hand) ...	72 6	72 6	*87 0	72 6	...	57 6
„ (Assistant) ...	60 0	60 0	*66 0	60 0	...	52 6
Smokers (First Hand) ...	65 0	67 6	*81 0	67 6	...	52 6
„ (Assistant) ...	60 0	56 0	*66 0	56 0	...	...
Washers (First Hand) ...	65 0	...	*68 9	56 0	...	52 6
„ (Assistant) ...	60 0	56 0	*66 0	...	...	...

† Hours quoted for Perth came into force on 1st January, 1918. ‡ Melbourne rates came into force on 2nd January, 1918. See also explanatory notes on page 1110.

## WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP III.—FOOD, DRINK, TOBACCO, ETC.—Continued.						
<b>Jam Making and Preserving.</b>	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Adult Males ...	54 0	57 0	*56 0	54 0	*66 0	48 0
Solderers ...	57 0	57 0	to 64 0 66 0	55 0	*66 0	51 0
<b>Malting.</b>						
Maltsters ...	56 0	60 0	63 0	...	60 0	56 0
<b>Meat Packing.</b>						
Cappers ...	64 0	60 0	58 0	...	...	...
Fillers and Podgers ...	54 0	60 0	52 6	...	...	...
Guillotine Hands ...	54 0	60 0	58 0	...	...	...
Jokermen ...	64 0	60 0	61 0	...	...	...
Lacquerers ...	64 0	60 0	52 6	...	...	...
Margarine Makers ...	56 6	74 0	...	...	...	...
Packers ...	54 0	60 0	52 6	...	...	...
Seamers ...	64 0	60 0	65 0	...	...	...
<b>Milk Delivery.</b>						
Carters (One Horse) ...	1 <sup>s</sup> 62 0	1 <sup>s</sup> 61 0	2 <sup>s</sup> 57 6	1 <sup>s</sup> 761 0	3 <sup>s</sup> 60 0	2 <sup>s</sup> 847 0
„ (Two Horses) ...	1 <sup>s</sup> 61 0	1 <sup>s</sup> 66 0	...	1 <sup>s</sup> 764 0	...	2 <sup>s</sup> 852 0
<b>Milling (Condiments)</b>						
Grinders ...	67 0	66 0	*65 0	66 0	...	...
Mixers or Blenders ...	60 0	66 0	*65 0	66 0	...	...
Other Adults ...	60 0	57 6	*60 0	57 6	...	...
Stone Dressers ...	67 6	63 0	to 65 0 ...	63 0	...	...
<b>Milling (Flour).</b>						
Engine Drivers ...	69 0	69 0	68 0	69 0	*69 0	50 0
Firemen ...	& 72 0 63 0	& 72 0 63 0	to 84 0 66 0	& 72 0 63 0	to 75 0 63 0	& 65 0 50 0
Millers (Head) ...	83 6	79 0	80 0	79 0	79 0	70 0
„ (Shift) ...	74 6	69 0	62 6	69 0	69 0	55 0
Millwrights ...	to 82 6 77 6	to 78 0 75 0	to 70 0 ...	to 78 0 75 0	to 78 0 75 0	...
Packermen ...	62 0	62 0	61 0	62 0	62 0	48 0
Purifiers ...	62 6	61 0	61 0	61 0	61 0	48 0
Silksmen ...	62 6	61 0	61 0	61 0	61 0	48 0
Smuttermen ...	62 0	62 0	61 0	62 0	62 0	...
Storemen (Head) ...	65 0	65 0	62 6	65 0	65 0	52 6
Topmen ...	& 66 6 62 6	61 0	& 65 0 61 0	61 0	61 0	48 0
Truckers and others ...	61 0	60 0	...	60 0	60 0	48 0
Wheat Carriers ...	†84 0	†84 0	†72 0	†72 0	†72 0	†84 0
<b>Milling (Oatmeal).</b>						
Kilnmen ...	62 6	60 0	...	60 0	...	48 0
Millers (Head) ...	73 0	66 0	...	66 0	...	70 0
<b>Milling (Rice).</b>						
Dryingroom Hands ...	66 0	57 6	...	57 6	...	...
Millers (Head) ...	73 0	66 0	...	66 0	...	...
Other Adults ...	60 0	57 6	...	57 6	...	...
Stonedressers ...	67 6	63 0	...	63 0	...	...

† Computed on the hourly rate for 48 hours. See also explanatory notes on page 1110.



## WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP III.—FOOD, DRINK, TOBACCO, ETC.—Continued.						
<b>Pastrycooking.</b>	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Carters† ...	25 57 6	17 61 0	19 61 0	48 0	...	17 61 0
Packers ...	57 6	48 0	...	...	...	...
Pastrycooks ...	66 0	69 0	75 0	67 6	61 6	60 0
„ (Assistant) ...	18 55 6	63 0	67 6	...	& 69 0	50 0
<b>Poulterers.</b>						
Bench Hands (1st Rate) ...	65 0	57 6	...	...	...	...
„ (2nd Rate) ...	60 0	50 0	...	...	...	...
Foremen ...	72 6	65 0	...	...	...	...
<b>Tea Packing.</b>						
Foremen ...	*65 0	67 6	12 70 0*	*70 0	...	...
Headmen ...	*60 0	61 6	...	*65 0	...	...
Other Adults ...	*58 6 to 60 0	56 0	12 60 0* & 62 6	*58 0	...	...
<b>Tobacco Working (Cigars).</b>						
Sorting and Packing ...	†	54 0	...	...	...	...

## GROUP IV.—CLOTHING, HATS, BOOTS, ETC.

<b>Bootmaking.</b>	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Bootmakers ...	66 0	66 0	66 0	66 0	66 0	66 0
<b>Dyeing and Cleaning.</b>						
Clothes Cleaners ...	*50 0 to 60 0	50 0	...	*60 0	\$54 0*	*60 0
Dyers (Black) ...	*70 0	55 0	...	*65 0	\$80 0*	...
„ (Colour) ...	*70 0	55 0	...	*65 0	\$80 0*	...
Dye-house Labourers ...	*45 0	45 0	...	...	\$54 0*	...
<b>Hatmaking (Straw).</b>						
Bleachers ...	...	50 0	...	...	...	...
Blockers ...	10 55 7	56 0	12 55 0*	10 55 0*	...	...
Foremen ...	10 60 0	63 0	12 60 0*	10 70 0*	...	...
Stiffeners ...	10 55 7	56 0	12 55 0*	10 55 0*	...	...
<b>Tailoring (Order).</b>						
Cutters ...	82 6	75 0	80 0	70 0	70 0	*70 0
Pressers ...	64 0	60 0	65 0	55 0	60 0	60 0
Tailors ...	65 0	65 0	65 0	60 0	70 0	65 0
Trimmers... ..	72 6	57 6	65 0	51 0	...	& 70 0 60 0
<b>Tailoring (Ready-made).</b>						
Brushers ...	54 0	52 0	12 60 0	55 0	...	50 0
Cutters ...	72 6	65 0	12 65 0	65 0	70 0	65 0
Folders ...	54 0	52 0	12 60 0	55 0	...	50 0
Machinists ...	...	60 0	12 60 0	60 0	65 0	60 0
Pressers (Coat Hands) ...	64 0	60 0	12 65 0	57 6	60 0	55 0
„ (Trouser & Vest Hands)	64 0	60 0	12 65 0	& 60 0 57 6	60 0	& 57 6 55 0
Tailors ...	67 6	65 0	13 65 0	& 60 0 62 6	70 0	& 57 6 65 0

† Piecework rates. : Hours quoted for Melbourne and Hobart came into force on 1st January, 1918. § 44 and 48 hours per week.  
See also explanatory notes on page 1110.

## WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP IV.—CLOTHING, HATS, BOOTS, ETC.—Continued.						
<b>Tailoring (Ready-made)—cont.</b>	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Trimmers... ..	72 6	57 6	12 65 0	56 0	...	57 0
Under Pressers (Coat Hands)	54 0	52 0	12 60 0	55 0	60 0	55 0
„ „ (Trouser and Vest Hands)	54 0	50 0	12 60 0	55 0	50 0	55 0
<b>Textile Working (Woollen Mills).</b>						
Carders ... ..	55 6	55 0	60 0	*54 0 to 60 0	...	37 6
Dyehousemen ... ..	57 0	54 0	60 0	*54 0	...	47 6
Foremen ... ..	67 6 to 72 6	*60 0 to 90 0	...	*60 0 to 90 0	...	55 0 to 60 0
Labourers (General)	55 6	54 0	60 0	*54 0	...	42 6
„ (Willyhouse)	55 6	54 0	60 0	*54 0	...	42 6
Milling Hands ... ..	55 6	54 0	60 0	*54 0 to 60 0	...	...
Other Adults ... ..	55 6	54 0	60 0	*54 0	...	42 6
Pattern Weavers ... ..	58 0	54 0 & 58 0	...	*54 0 & 58 0	...	...
Scourers ... ..	55 6	54 0	63 0	*54 0	...	42 0
Spinners ... ..	55 6	57 0	70 0	*54 0 & 57 0	...	45 0
Tuners ... ..	60 0 to 71 0	55 0 to 65 0	60 0 & 65 0	*54 0 to 65 0	...	55 0
Twisters in	59 0	54 0	...	*54 0	...	45 0
Warpers ... ..	55 6	55 0	...	*55 0	...	52 6
<b>Tiemaking.</b>						
Cutters (Lining) ... ..	...	40 0	...	...	...	...
„ (Silk) ... ..	...	47 6	...	...	...	...
<b>Waterproof Clothing.</b>						
Cutters (Rubber Material) ...	*70 0	65 0	...	...	...	...
„ (Other) ... ..	...	60 0	...	...	...	...
Garment Makers ... ..	...	60 0	...	...	...	...

## GROUP V.—BOOKS, PRINTING, BINDING, ETC.

<b>Bookbinding.</b>	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Feeders ... ..	...	52 6	56 0	54 0	...	50 0
Finishers ... ..	70 0	71 0	68 0	68 0	70 0	70 0
Journeymen Bookbinders ...	70 0	71 0	68 0	68 0	70 0	70 0
Marblers ... ..	70 0	71 0	68 0	68 0	70 0	70 0
Paper Rulers ... ..	70 0 to 82 6	71 0	68 0	68 0	70 0	70 0
<b>Engraving (Process).†</b>						
Engravers ... ..	*67 6	*65 0	...	...	...	...
Etchers (Half-tone) ... ..	*72 6 & 75 0	*70 0	...	*70 0	...	...
„ (Line) ... ..	*67 6 & 70 0	*65 0	5a65 0*	*65 0*	...	...

† Other than in newspaper offices. Higher rates quoted for Sydney are paid in newspaper offices. See also explanatory notes on page 1110.

## WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP V.—BOOKS, PRINTING, BINDING, ETC.—Continued.						
<b>Engraving, (Process)—cont.</b>	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Mounters ...	60 0	60 0	5a60 0*	...	...	...
Operators ...	72 6 & 75 0	65 0	5a65 0*	...	...	...
Printers ...	67 6 & 70 0	655 0	5a55 0* to 60 0	862 6*	...	...
Routers ...	60 0	60 0	...	...	...	...
<b>Lithographing.</b>						
Printers ...	70 0	73 0	73 0	68 0	...	70 0
Rotary Machinists...	75 0	77 0	73 0	68 0	*56 0	80 0
Stone Polishers ...	*50 0 to 60 0	56 0	56 0	54 0	...	70 0
<b>Printing (Daily Newspapers).</b>						
Compositors ... Day	92 5	90 0	*84 4	84 0	67 6	70 0
" ... Night	109 2	100 0	*91 8	88 0	*80 0	*75 3
Linotype Attendants Day	*70 0	1060 0	*65 0	63 0	*55 0	66 0
" " Night	*70 0	*62 0	*70 0	78 0	*60 0*	*66 0 & 70 0
Linotype Operators Day	†	†	*95 4	*75 0*	*80 0	†
" " Night	†	†	*102 8	†	*90 0	†
Machinists, 1st Hand Day	82 6	1077 0	*95 0	80 0	65 0	...
" " Night	*89 3	*83 4	*100 0	86 0	*65 0	*70 0
Publishers ...	63 3 & 66 0	*60 0	*60 0	63 0	1260 0 & 65 0	*70 0
Readers ... Day	84 0	85 0	*67 6 & 82 6	83 0	*75 0	70 0
" " Night	105 0	90 0	*72 6 & 87 6	87 0	*85 0	*75 3
Reader's Assistants Day	60 0	52 3	*60 0	54 0	*57 0	...
" " Night	63 0	60 0	*65 0	58 0	*57 0	*60 0
Stereotypers (1st Class) Day	74 3	1071 9	*72 6 & 82 6	66 0	1270 0	...
" " Night	79 9	*78 4	*77 6 & 87 6	70 6	*75 0	*70 0
Stereotypers (Assists.) Day	66 0	1061 3	*62 6	54 0	1260 0	...
" " Night	71 6	*68 4	*67 6	58 0	*63 0	*55 0
<b>Printing (Jobbing Offices).</b>						
Compositors ...	73 6	73 0	68 0	68 0	70 0	70 0
Electrotypers ...	74 0	73 0	60 0	*65 0	...	70 0
General Hands ...	48 0	52 6	56 0	54 0	*55 0	50 0
Linotype Operators ...	*75 0	*81 0	*73 0 & 81 4	*75 0	*580 0 & 90 0	81 0
Machinists ...	56 0 & 70 0	73 0	56 0 & 68 0	68 0	70 0	70 0
Monoline Operators ...	*71 3	*81 0	*73 0 & 81 4	*75 0	*580 0 & 90 0	81 0
Monotype Operators ...	*63 9	*81 0	*68 0 & 74 0	*75 0	*577 6	†
" Casting Machinists	*48 0	*52 6	*56 0	58 0	...	...
Readers ...	65 0	77 0	68 0	68 0	*875 0	70 0
Stereotypers ...	67 6	73 0	56 0 & 68 0	68 0	70 0	70 0
Typograph Operators ...	*75 0	*81 0	*73 0 & 81 4	*75 0	*65 0	...

† Piece-work rates. See also explanatory notes on page 1110.

## WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP VI.—OTHER MANUFACTURES.						
<b>Asphalting.</b>	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Layers (Cold Work) ...	66 0	60 6	...	60 0	...	48 0
„ (Hot Work) ...	66 0	66 0	...	to 65 0*	...	to 60 0*
Mastic Boilers ...	...	80 0	...	...	...	48 0
Potmen ...	66 0	55 0	...	...	...	to 60 0*
Rubbers Down ...	...	60 6	...	...	...	48 0
Yardmen and Labourers ...	64 0	55 0	...	54 0*	...	to 60 0
<b>Boatbuilding.</b>						
Boatbuilders ...	76 0 & 80 0	*72 0	1262 8 to 70 6*	84 0*	90 0	*72 0
<b>Brickmaking.</b>						
Burners ...	67 6 & 69 0	3377 6	64 0 & 66 0	3375 0	2870 0	55 6
Carters (One Horse)†	2955 6	1761 0	1961 0	1761 0	54 0	1761 0
„ (Two Horses)†	2960 0	1766 0	1966 0	1764 0	60 0	1766 0
Clayholemen ...	68 0	60 0	62 0	60 0	60 0	49 6
Drawers ...	69 6	70 0	62 0	66 0	†	55 6
Labourers ...	64 0	57 0	60 0	54 0	56 0	49 6
Loaders Out ...	64 0	...	60 0	...	...	55 6
Loftsmen ...	61 0	57 0	60 0	57 0	52 0	54 0
Machinemmen ...	66 0	1864 10	62 0	59 0	58 0	54 0
Panmen ...	64 0	1862 8	60 0	1859 0 & 62 0	58 0	54 0
Pit Foremen ...	74 6	80 0	66 0	67 0	66 0	...
„ Men ...	68 0	63 0	62 0	60 0	60 0	54 0
„ Shooters ...	71 0	67 0	66 0	67 0	66 0	57 0
Setters ...	69 6	66 0	60 0	66 0	62 0	54 0
Truckers ...	69 6*	57 0	60 0	57 0	56 0	54 0
Wheelers ...	64 0	57 0	60 0	57 0	60 0	54 0
Yardmen ...	64 0	57 0	60 0	54 0	56 0	55 6
<b>Broom-making (Millet).</b>						
Sorters (Head) ...	66 9	72 6	60 0*	...	...	770 0*
„ (Other) ...	57 9 & 61 0	62 6	57 6*	...	...	745 0*
Varnishers Ringers and Sizars	per 1000	2 10	2 6	...	...	...
<b>Brushmaking.</b>						
Bass Broom Drawers ...	66 0	52 6	...	52 6	...	...
Finishers ...	66 0	60 0	...	60 0	...	...
Machinists (Boring) ...	66 0	60 0	...	60 0	...	...
„ (Boults Carver) ...	*69 0	64 0	...	64 0	...	...
Paint Brush Makers ...	70 0	67 6	...	67 6	...	...
Pan Workers (Hair & Bass) ...	66 0	55 0	...	55 0	...	...
<b>Candle Making.</b>		& 60 0		& 60 0		
Acidifiers ...	57 0	63 0	63 0	63 0	...	...
General Hands ...	55 0	57 6	58 0	57 6	60 0*	...
Glycerine Distillers ...	59 6	63 0	58 0	63 0	...	...
Moulders ...	55 0	61 6	63 0	61 6	60 0*	57 6*
Press Room Gangers ...	57 0	60 6	59 0	63 6	...	...
Stillmen ...	60 0	63 0	63 0	63 0	...	...

† Piece-work rates. ‡ Hours quoted for Melbourne and Hobart came into force 1st January, 1918. See also explanatory notes on page 1110.

## WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP VI.—OTHER MANUFACTURES—Continued.						
<b>Cardboard Box Makers.</b>	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Guillotine and other Cutters	*54 0 to 60 0	64 0	50 0 to 60 0*	68 0	...	...
Other Adults ...	*50 0	52 0	50 0 to 60 0*	...	...	...
<b>Coachmaking (Road).</b>						
Bodymakers ...	67 6	66 0	*62 4	66 0	63 0	60 0
Labourers ...	55 6	51 0	*51 4	54 0	...	...
Painters ...	67 6	66 0	*62 4	66 0	63 0	60 0
„ Labourers...	56 6	51 0	*51 4	54 0	*54 0	...
Smiths ...	67 6	66 0	*62 4	66 0	63 0	60 0
„ Strikers ...	55 6	51 0	*44 0	57 0	60 0	...
Trimmers ...	67 6	66 0	*62 4	66 0	63 0	60 0
Vycemen ...	58 6	52 0	...	54 0	*60 0	45 0
Wheelmaking Machinists	67 6	66 0	*62 4	66 0	63 0	*65 0
Wheelwrights ...	67 6	66 0	*62 4	66 0	63 0	60 0
<b>Coachmaking (Axlemaking).</b>						
Centre Turners ...	67 6	51 0	...	66 0	...	...
Faceplate Workers...	67 6	60 0	...	66 0	...	...
<b>Coachmaking (Springmaking).</b>						
Fitters ...	67 6	66 0	...	66 0	...	...
Spring Makers ...	67 6	64 0	...	66 0	...	...
<b>Fellmongering.</b>						
Bate Hands ...	57 0	56 0	60 0	*57 0 & 60 0	...	...
Green Hands ...	55 6	56 0	61 6	60 0	...	...
Labourers ...	55 6	56 0	60 0	*57 0 & 60 0	...	...
Limepit Men ...	57 0	56 0	64 6	60 0	...	...
Machinists (Burring)	60 0	57 0	67 6	60 0	...	...
„ (Fleshing)	60 0	57 0	67 6	*60 0 & 60 0	...	...
„ (Scouring)	55 6	60 0	61 6	*60 0 & 65 0	...	...
„ (Setting Out)	60 0	57 0	60 0	*57 0 & 60 0	...	...
Soakhole Men ...	60 0	56 0	67 6	*57 0 & 60 0	...	...
Sweathouse Men ...	57 0	56 0	67 6	60 0	...	...
Wool Sorters ...	60 0	63 0	61 6	60 0	...	...
<b>Fibrous-Plaster Working.</b>						
Fixers' Assistants ...	*54 0	*54 1	...	...	...	...
Other Adults ...	*54 0	54 0	...	...	...	...
Shop Hands ...	...	66 0	...	...	...	...
<b>Gas Making and Supply.†</b>						
Blacksmiths ...	*80 0	78 0	*75 2	76 6	*78 0	76 6
Coke Trimmers ...	67 6	66 0	55 0*	64 6	65 0	64 6
Engine Drivers ...	68 6 to 76 6	75 0	68 0 to 84 0	78 7	*72 0	73 6
Gas Fitters ...	72 0	81 0	*60 6	79 6	78 0	79 6
Labourers ...	61 6	63 0	*55 0	61 6	60 0	61 6
Mainlayers ...	76 6 & 84 0	75 0	69 7 & 63 3	73 6	72 0	73 6
Metermakers ...	66 0	72 0	...	79 6	72 0	79 6
Meter Testers ...	54 0 & 60 0	69 0	...	...	...	...

† Working hours per week for main and service layers and yardsmen are 44 in North Brisbane and 48 in South Brisbane. See also explanatory notes on page 1110.

## WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP VI.—OTHER MANUFACTURES—Continued.						
<b>Gas Making and Supply† (cont.)</b>	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Service Layers ...	67 6	75 0	69 7	73 6	69 0	73 6
" " (Labourers) ...	61 6	66 0	65 0	64 6	60 0	64 6
Stokers ...	73 6	75 0	82 10	78 7	69 0	73 6
Yardmen ...	61 6	& 76 6 63 0	to 81 10 & 65 0	& 76 6 61 6	& 75 0 57 0	& 75 0 61 6
<b>Glassfounding.</b>						
Bottlestoppers ...	63 0	63 0	...	63 0	...	...
Furnacemen ...	28 69 0	69 0	28 66 0	69 0	25 75 0	...
" (Assistant) ...	28 63 0	63 0	28 60 0	63 0	...	...
Labourers ...	63 0	63 0	...	63 0	*60 0	...
Lehrmen ...	63 0	63 0	...	63 0	...	...
Packers ...	63 0	63 0	...	63 0	*60 0	...
Sorters ...	63 0	63 0	...	63 0	*60 0	...
<b>Glassworking and Glazing.</b>						
Bevellers ...	73 0 & 74 0	62 6	*66 0	56 0	...	60 0
Cementers ...	*40 0 to 50 0	48 0	...	36 0	...	...
Cutters and Glaziers (Other) ...	72 0	54 0	67 1 6	48 0	...	...
" " (Plate) ...	72 0	62 6	67 1 6	56 0	...	...
Lead Light Glaziers ...	73 0	54 0	...	56 0	...	...
Packers ...	*60 0	53 0	...	48 0	...	...
Silverers (using Own Recipe) ...	76 0	...	...	60 0	...	...
" (Others) ...	76 0	62 6	6 60 0	56 0	...	...
<b>Horsehair Working.</b>						
Curlers ...	*60 0	60 0	...	...	...	...
Drafting Hands ...	*60 0	60 0	...	...	...	...
Wet Hacklers and Others ...	*50 0 to 60 0	52 6	...	...	...	...
<b>Jewellery, Clock and Watch Making.†</b>						
Chainmakers ...	73 6 & 76 0	63 0	12 65 0*	\$60 0 & 67 6	*70 0	*50 0 to 70 0
Engravers ...	76 0	11 75 0	12 65 0*	\$70 0	*70 0	*50 0 to 70 0
Mounters ...	73 6	70 0	12 65 0*	\$75 0	*70 0	*50 0 to 70 0
Setters ...	76 0	70 0	12 75 0	\$75 0	*70 0	*50 0 to 70 0
Watch and Clock Makers ...	11 75 0	11 70 0	12 70 0	\$72 6	*70 0	*70 0 to 80 0
" " Repairers ...	11 75 0	11 70 0	12 70 0	\$72 6	*70 0	*70 0 to 80 0
<b>Leather (Small Goods).</b>						
Foremen ...	...	66 0	*70 0 to 80 0	...	...	66 0
General Hands ...	66 0	66 0	66 0	66 0	*66 0	66 0
<b>Manures (Animal).</b>						
Fertilizer Hands ...	54 0	54 0	56 6	...	...	...
<b>Manures (Artificial).</b>						
Acid Retortmen ...	61 0	63 0	...	63 0	63 0	...
Bagging Men ...	58 0	60 0	...	60 0	60 0	...
Bin Workers ...	64 0	60 0	...	60 0	60 0	...
Bone Mill Feeders ...	...	60 0	...	60 0	60 0	...
Chamber Burners ...	66 0	63 0	...	63 0	63 0	...
Crushers and Mixers ...	60 0 to 66 0	63 0	...	63 0	60 0	...
Labourers ...	60 0	60 0	...	60 0	60 0	...

† See footnote on previous page. ‡ Melbourne rates from 19th January, 1918. § Hours of labour per week; 48 (daylight), 45 (artificial light). See also explanatory notes on page 1110.

## WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP VI.—OTHER MANUFACTURES—Continued.						
<b>Masons (Marble and Stone).</b>	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Carvers ...	£110 0	£82 6	£71 6	84 0	*78 0	...
Machinists (Carborundum) ...	70 0	62 0	£71 6	64 0	*60 0	...
„ (Other) ...	...	70 0	£71 6	64 0	*60 0	...
Masons ...	£77 11 & 81 7	£71 6	£73 4	68 0	*78 0	72 0
Polishers (Machine—Granite)	70 0	62 0	£71 6	54 0	*78 0	...
„ ( „ Marble)	70 0	62 0	£71 6	54 0	*78 0	...
„ (Other—Granite) ...	70 0	£60 0	£71 6	54 0	*78 0	...
„ ( „ Marble)	70 0	£58 1	£71 6	54 0	*78 0	...
<b>Masons, Monumental Workers.</b>						
Carvers ...	£88 11	£77 0	£71 6	84 0	*78 0	72 0
Fixers ...	81 0	60 0	£71 6	64 0	*72 0	72 0
Labourers ...	57 0	58 0	£47 8	54 0	*60 0	60 0
Letter Cutters ...	£76 1	£69 8	£71 6	74 0	*78 0	72 0
Masons ...	£74 3	£66 0	£71 6	68 0	*78 0	72 0
<b>Opticians.</b>						
Journeyman ...	£168 0	£162 0	to 70 0*	67 6	...	...
<b>Paper Bag Making.</b>						
Guillotine Cutters ...	48 0	57 6	68 0	68 0	...	...
Machinists ...	62 6	57 6 & 68 6	68 0	*70 0	...	...
<b>Paper Making.</b>						
Beatermen ...	76 0	72 0	...	...	...	...
„ (Assistant) ...	58 0	54 0	...	...	...	...
Breakermen ...	57 6	60 0	...	...	...	...
Cutters ...	58 0	57 0	...	...	...	...
Guillotine Men ...	58 0	57 0	...	...	...	...
Machinists ...	76 0	72 0	...	...	...	...
„ (Assistant) ...	55 0	54 0	...	...	...	...
Packers ...	57 6	54 0	...	...	...	...
Ragboilermen ...	60 0	57 0	...	...	...	...
Rippers ...	57 6	57 0	...	...	...	...
Other Adults ...	55 0	54 0	...	...	...	...
<b>Polish Making.</b>						
Foremen ...	...	60 0	...	...	...	...
Grinders ...	...	60 0	...	60 0	...	...
Millhands ...	...	60 0	...	...	...	...
Mixers ...	...	60 0	...	60 0	...	...
Other Adults ...	...	57 6	...	57 6	...	...
<b>Portmanteau Making.</b>						
Journeyman ...	66 0	66 0	66 0	66 0	*66 0	66 0
<b>Potteries (General).</b>						
Burners (Head) ...	64 0	£375 6	60 0	*57 0	...	52 6
„ (Assistant) ...	59 0	£370 0	60 0	*54 0	...	49 6
Hollowware Pressers ...	69 0	56 9	60 0	*60 0	...	55 6
Labourers ...	59 0	54 0	60 0	*51 0	...	49 6
Sagger Makers ...	61 6	54 0	...	& 54 0 *51 0 & 54 0	...	...
Sanitary Pressers ...	74 0	58 9	60 0	...	...	55 6
Throwers (1st Class) ...	74 0	63 0	76 0	*63 0	...	58 6
„ (2nd Class) ...	...	52 6	68 0	...	...	49 6
Turners ...	66 0	to 57 9 56 9	...	...	...	...

See explanatory notes on page 1110.

## WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP VI.—OTHER MANUFACTURES—Continued.						
<b>Potteries (Pipemaking).</b>	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Burners (Head) ...	69 0	<sup>33</sup> 75 6	66 0	*57 0	*66 0	58 6
„ (Assistant) ...	...	<sup>33</sup> 70 0	60 0	...	*60 0	49 6
Drawers ...	64 0	55 0	60 0	*54 0	*66 0	...
Junction Stickers ...	66 0	56 3	60 0	...	*66 0	52 6
Moulders ...	70 0	58 3	60 0	...	*72 0	54 0
Mould Makers ...	64 0	68 0	62 0	*66 0	*72 0	...
Setters ...	68 0	58 3	60 0	...	*66 0	52 6
<b>Potteries—Tile Making, (other than Roofing).</b>						
Labourers ...	59 0	50 6	60 0	...	...	49 6
Moulders or Pressers ...	60 0	51 6 & 55 6	60 0	...	...	...
Setters (Head) ...	65 0	53 6	60 0	...	...	...
„ (Other) ...	60 0	50 6	60 0	...	...	...
<b>Quarrying.</b>						
Borers (Hand or Machine)...	68 0	66 0	72 0	*63 0	65 0	57 0
„ (Assistant)...	60 0	60 0	65 6	*60 0	...	54 0
Dressers ...	<sup>67</sup> 3 4	72 0	65 6	...	...	54 0
Facemen ...	70 0	66 0	72 0	...	...	54 0
Gutterers... ..	<sup>67</sup> 8 10	...	76 0	...	...	54 0
Hammermen ...	66 0	75 0	72 0	*69 0	60 0	54 0
Labourers or Strippers ...	60 0	60 0	65 6	*60 0	54 0	50 0
Loaders, Pluggers or Truckers	60 0	60 0	65 6	*63 0	54 0	50 0
					& 60 0	
Machine Feeders ...	72 0	60 0	71 6	*66 0	60 0	54 0
Quarrymen ...	<sup>67</sup> 3 4	...	76 0	*63 0	60 0	*66 0
					& 66 0	
Spallers ...	64 0	66 0	70 0	*63 0	60 0	54 0
<b>Rope Making.</b>						
Clothes Line Lappers ...	54 0	52 0	42 0	...	...	...
Feeders for First Spreader ...	54 0	54 0	42 0	*54 0	...	...
Foremen (Head) ...	66 0	60 0	60 0	...	...	...
„ (Jenny) ...	& 69 0	& 65 0	...	...	...	...
Knockers Out and Dampers	54 0	60 0	48 0	...	...	...
Down ...	54 0	52 0	42 0	*54 0	...	...
Oilers ...	54 0	54 0	...	*54 0	...	...
Packers ...	54 0	52 0	42 0	*54 0	...	...
Reelers (Hand) ...	54 0	54 0	42 0	*54 0	...	...
„ (Steam) ...	54 0	55 0	...	...	...	...
<b>Rubber Working.</b>						
Calender Hands ...	75 0	71 6	...	...	...	...
Compound Weighers ...	63 0	62 6	...	...	...	...
	to 66 0*	...	...	...	...	...
Cycle Tyre Makers ...	60 0	62 6	...	...	...	...
Dough Mixers ...	63 0	62 6	...	...	...	...
Forcing Machinists ...	63 0	60 0	...	...	...	...
Heaters ...	63 0	61 6	...	...	...	...
Hosemakers ...	63 0	62 6	...	...	...	...
Mechanical Lathe Hands ...	63 0	62 6	...	...	...	...
Mill Hands ...	66 0	65 6	...	...	...	...
Moulders (Other) ...	63 0	61 6	...	...	...	...
Other Adults ...	60 0	57 6	...	...	...	...
Press Hands ...	63 0	61 6	...	...	...	...
Spreaders... ..	63 0	62 6	...	...	...	...



## WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP VI.—OTHER MANUFACTURES—Continued.						
<b>Rubber Working—cont.</b>						
Surgical Packing and other	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Makers... ..	63 0	62 6	...	...	...	...
Textile Cutters ... ..	60 0	60 0	...	...	...	...
Tube Repairers ... ..	63 0	62 6	...	*55 0	...	...
„ Joiners ... ..	60 0	59 0	...	to 60 0	...	...
Tyre Moulders ... ..	66 0	71 6	...	*55 0	...	...
Vulcanisers ... ..	63 0	57 6	...	to 60 0	...	...
Wrappers... ..	60 0	59 0	...	*55 0	...	...
				to 60 0		
<b>Saddlery and Harnessmaking.</b>						
Collarmakers ... ..	66 0	66 0	66 0	66 0	65 0	66 0
Harnessmakers ... ..	66 0	66 0	66 0	66 0	60 0	66 0
Machinists ... ..	65 0	66 0	66 0	66 0	60 0	66 0
Saddlers ... ..	66 0	66 0	66 0	66 0	60 0	66 0
<b>Sail Making.</b>						
Sailmakers ... ..	68 0	58 6	*62 6	*54 0	1260 0	...
					to 70 0*	
<b>Ship Workers.</b>						
Carpenters and Joiners ... ..	80 0	673 4	*66 0	*84 0	...	*72 0
Dockers ... ..	72 0	*66 0	*66 0	...	...	...
	& 80 0					
Painters ... ..	79 0	*66 0	*66 0	52 0	...	...
	& 87 0		& 73 4			
Shipwrights (New Work) ... ..	80 0	*82 6	*82 6	84 0	90 0	*72 0
„ (Old Work) ... ..	84 0	*82 6	*82 6	84 0	90 0	*72 0
<b>Soap Making.</b>						
Foremen ... ..	62 0	64 6	62 6	64 6	...	*73 0
General Hands ... ..	55 0	57 6	57 6	57 6	*60 0	*59 0
Mixers ... ..	55 0	62 6	57 6	62 6	*60 0	...
Soap Makers ... ..	67 0	67 0	57 6	67 0	*60 0	*80 0
„ (Assistant) ... ..	57 0	66 6	57 6	66 6	...	*77 6
<b>Tallow Making.</b>						
Tallowmen ... ..	66 6	60 0	60 0	*50 0	70 0	2752 6
				to 55 0		
<b>Tanning and Currying.†</b>						
Beamsmen ... ..	70 6	70 6	70 6	70 6	70 6	70 6
Curriers ... ..	75 6	75 6	75 6	75 6	75 6	75 6
Fancy Leather Finishers ... ..	65 6	65 6	65 6	65 6	65 6	65 6
Japanners or Enamellers ... ..	65 6	65 6	65 6	65 6	65 6	65 6
Jiggers and Grainers (Book-binding Leather) ... ..	68 6	68 6	68 6	68 6	68 6	68 6
Labourers ... ..	61 6	61 6	61 6	61 6	61 6	61 6
Limemen and Yardmen ... ..	62 6	62 6	62 6	62 6	62 6	62 6
Machinists (Fleshing) ... ..	70 6	70 6	70 6	70 6	70 6	70 6
„ (Scouring) ... ..	63 6	63 6	63 6	63 6	63 6	63 6
„ (Scudding) ... ..	65 6	65 6	65 6	65 6	65 6	65 6
„ (Shaving) ... ..	68 6	68 6	68 6	68 6	68 6	68 6
„ (Splitting) ... ..	75 6	75 6	75 6	75 6	75 6	75 6
„ (Unhairing) ... ..	65 6	65 6	65 6	65 6	65 6	65 6
„ (Whitening) ... ..	68 6	68 6	68 6	68 6	68 6	68 6
„ (Other) ... ..	63 6	63 6	63 6	63 6	63 6	63 6
Rollers and Strikers ... ..	67 6	67 6	67 6	67 6	67 6	67 6
Tablemen ... ..	65 6	65 6	65 6	65 6	65 6	65 6

† In Melbourne, the current Wages Board Determination provides weekly rates of wage for night shifts equivalent to time and a quarter daily rates for each occupation.

See also explanatory notes on page 1110.

## WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP VI.—OTHER MANUFACTURES—Continued.						
<b>Tent and Tarpaulin Making.</b>	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Cutters (1st Hand)...	60 0	70 0	1 <sup>s</sup> 65 0*	*63 0	1 <sup>2</sup> 60 0*	1 <sup>2</sup> 70 0*
„ (2nd „ )...	50 0	50 0	1 <sup>s</sup> 55 0*	to 66 0	1 <sup>2</sup> 60 0	1 <sup>2</sup> 50 0*
Dressers ...	54 0	50 0	...	...	...	...
Machinists ...	52 6	50 0	1 <sup>s</sup> 65 0*	*66 0	...	...
Sewers (Hand) ...	60 0	58 6	1 <sup>s</sup> 65 0*	*60 0	1 <sup>2</sup> 60 0*	...
Tentmakers ...	60 0	58 6	*65 0*	*60 0	1 <sup>2</sup> 60 0*	...
<b>Wickerworking.</b>						
Bamboo or Wickerworkers ...	66 0	60 0	*66 0	60 0	67 0	52 6
Basket Makers and Repairers ...	69 0	58 6	*66 0	60 0	...	...
	& 72 0					
Upholsterers ...	*67 0	56 0	*66 0	60 0	...	...

## GROUP VII.—BUILDING.

<b>Bricklaying.</b>	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Bricklayers (Surface) ...	84 0	*77 0	*79 9	*77 0	*84 0	76 0
„ (Sewer & Tunnel) ...	90 0	*82 6	*79 9	*77 0	*84 0	84 0
<b>Carpentering.</b>						
Carpenters ...	80 0	*73 4	*75 2	*71 6	72 0	72 0
<b>Joinery.</b>						
Machinists (1st Class) ...	74 0	70 0	*75 2	67 6	...	72 0
„ (2nd „ ) ...	69 0	68 0	*69 8	60 0	...	63 0
„ (3rd „ ) ...	62 6	61 0	*69 8	58 6	...	60 0
<b>Labouring (Builders).†</b>						
Bricklayers' Labourers ...	72 0	*66 0	*64 2	*66 0	*54 0	*66 0
					to 60 0	
Carpenters' „ ...	68 0	*66 0	*64 2	*66 0	*60 0	*66 0
Concrete Workers ...	68 0	*66 0	*64 2	*66 0	*60 0	*66 0
Earth Excavators ...	68 0	*66 0	*64 2	*66 0	*60 0	*66 0
Gear Workers ...	68 0	*66 0	*64 2	*66 0	*72 0	*66 0
Masons' Labourers ...	68 0	*66 0	*64 2	*66 0	*54 0	*66 0
					to 60 0	
Plasterers' „ ...	68 0	*66 0	*64 2	*66 0	*54 0	*66 0
					to 60 0	
Scaffold Hands ...	68 0	*66 0	*64 2	*66 0	*72 0	*66 0
<b>Lathing and Ceiling.</b>						
Lathers ...	*78 0	*675 2	*677 0	*72 0	*78 0	*68 0
Metal Ceilings ...	68 0	*670 0	*675 2	...	...	*48 0
<b>Masonry.</b>						
Masons ...	*77 11	*671 6	*673 4	*677 0	*678 0	*672 0
	to 81 7					
<b>Painting (House) and Glazing.</b>						
Glaziers ...	75 0	*66 0	*671 6	*66 0	72 0	66 0
Painters ...	75 0	*66 0	*671 6	*66 0	72 0	66 0
Paperhangers ...	75 0	*66 0	*671 6	*66 0	72 0	66 0
Signwriters ...	83 0	*66 0	*671 6	*66 0	72 0	66 0

† The rates of wage quoted for Builders' Labourers for Sydney are those payable under State Award. The rates quoted for Perth are the ruling or predominant rates, while those for Melbourne, Brisbane, Adelaide, and Hobart are the rates fixed by the Award of the Commonwealth Arbitration Court. See also explanatory notes on page 1110.

## WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP VII.—BUILDING—Continued.						
<b>Plastering.</b>	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Fibrous Plaster Fixers ...	84 0	66 6	71 6	...	...	...
Plasterers (Surface) ...	84 0	75 2	77 0	73 4	78 0	68 0
„ (Sewer or Tunnel)	88 0	to 78 10 84 4	86 2 to 90 9	85 4	...	...
<b>Plumbing and Gasfitting.</b>						
Galvanized Iron Workers ...	80 0	73 4	75 2	76 0	78 0	*60 0 to 70 0
Gasfitters ...	80 0	73 4	75 2	69 8	78 0	*72 0
Plumbers ...	80 0	73 4	75 2	73 4	78 0	*72 0
<b>Roofing.</b>						
Shinglers ...	84 0	82 6	*75 2	...	...	...
Slaters ...	84 0	82 6	*75 2	*72 0	*72 0	*66 0
Tilers ...	84 0	82 6	*75 2	*72 0	*72 0	*66 0
<b>Tile Laying.</b>						
Tile Layers ...	78 0	77 0	77 0	...	...	*677 0
<b>Tuckpointing.</b>						
Tuckpointers ...	72 0	71 6	79 9	*72 0	*72 0	*671 6
<b>Water Supply and Sewerage.</b>						
Carpenters ...	80 0	73 4	...	*78 0	72 0	*66 0
Concretors ...	69 0	72 0	66 0	*57 0	63 6	*57 0
Labourers ...	63 0	* 57 0	to 73 4 60 0	& 63 0 *54 0 & 60 0	57 6	*54 0
Miners (Sewer) ...	4-677 11 & 85 6	68 0 & 72 0	75 2 to 82 6	...	*66 6	*54 0
Pipejointers and Setters ...	66 0 & 70 6	68 0	66 0	*60 0 to 66 0	66 6 & 81 6	*57 0
Timbermen ...	70 6 & 75 6	...	75 2 to 82 6	*57 0 & 63 0	66 6	*54 0
Toolsharpeners ...	66 0	68 0	72 0	*57 0 & 63 0	66 6	*60 0

## GROUP VIII.—MINING.

<b>Coal Mining.†</b>	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Blacksmiths ...	70 0 to 84 0	77 4 to 80 6	88 0 & 91 0	Not mined.	...	65 0 to 79 6
Bracemen ...	72 0 to 73 9	64 9 to 77 5	71 3 & 86 10½		...	...
Carpenters ...	72 0 to 88 0	77 4 to 82 9	82 0 & 83 0		...	65 0
Deputies ...	84 0 to 99 0	92 10 to 104 6	91 0 & 94 4½		...	83 0 & 84 0

† The rates of wage quoted are those awarded by the special tribunal appointed under the War Precautions Act. The rates came into force on the 1st January, 1917. The hours of labour for coal miners in the Commonwealth were fixed by the tribunal, as follows:—Eight hours bank to bank, inclusive of one half hour for meal time, on Monday, Tuesday, Wednesday, Thursday and Friday, and six hours bank to bank, inclusive of one half-hour for meal time on Saturday, Sundays and holidays. The customary number of shifts per fortnight is eleven, the collieries not working on pay Saturday.

See also explanatory notes on page 1110.

## WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	N.S.W.	Victoria.	Q'land.	Sth. Aust.	W. Aust.	Tasmania
GROUP VIII.—MINING—Continued.						
<b>Coal Mining—continued.</b>	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Engine Drivers (Winding and Loco.) ...	76 0 to 88 0	75 5 to 84 0	84 0		1281 0 & 84 0	...
Engine Drivers (Other) ...	69 0 to 80 0	69 0	75 10		...	69 0 to 81 0
Labourers (Surface) ...	65 5 to 69 0	62 0 to 64 9	65 4½ & 71 9		73 0	60 0 to 65 0
„ (Underground) ...	65 6 to 72 0	64 9	67 6 & 75 7½		...	...
Miners (Machine) ...	†	†	†		†	...
„ (Manual, Dry Work)	†	†	†		†	†
„ „ (Wet Work)	†	†	†		...	†
Platmen or Banksmen ...	72 0 to 75 6	79 0 to 85 1	65 4½ to 79 4½		84 0	60 0
Shaftsinkers (Dry Work) ...	†	†	91 0 & 96 4½		†	†
„ (Wet Work) ...	†	†	99 0 & 104 3		†	†
Shiftmen (Dry Work) ...	65 6 to 93 0	79 0 to 85 1	93 0 & 90 9	Not Mined.	96 0	77 6
„ (Wet Work) ...	65 6 to 93 0	86 5	91 0 & 98 3		...	...
Shotfirers ...	78 0 to 96 6	...	83 0		96 0	...
Shovellers ...	65 6 to 69 0	64 9	...		85 0	...
Skip Repairers ...	65 6 to 73 0	61 6 to 64 9	...		...	65 0
Strikers ...	60 0 to 68 6	61 6 to 64 9	...		...	...
Timbermen ...	78 6 to 85 6	79 2 to 90 0	83 0		84 0	...
Weighmen ...	73 2 to 80 0	69 7 to 86 4	...		84 0	72 0
Wheelers ...	63 0 to 75 6	72 0 to 75 6	72 0 & 77 4½		84 0 to 91 0	61 6
<b>Gold and Other Mining (except Coal).§</b>	.	.	.		.	.
Battery Feeders ...	54 0 to 67 6	54 0 & 58 0	66 0 to 84 0	...	69 0 to 79 6	48 0 to 60 0
Bracemen ...	57 0 to 72 0	59 0 & 60 6	63 3 to 89 10	75 0 & 79 0	72 0 to 82 6	54 0 to 69 0
Engine Drivers (Stationary)	66 0 to 78 0	60 0 to 75 0	75 2 to 103 7	89 0 to 99 0	79 6 to 93 0	55 0 to 78 0
„ (Winding & Loco.)	78 0 to 90 0	72 0 to 78 0	80 0 to 114 7	110 0	85 6 to 96 0	66 0 to 84 0
Firemen ...	60 0 to 78 0	57 0 to 72 0	66 0 to 95 4	82 6 to 90 6	69 0 to 84 0	60 0 to 66 0
Labourers ...	58 6 to 67 6	54 0 to 59 0	54 1 to 84 4	68 0 to 72 6	67 6 to 78 0	48 0 to 64 6

† Contract work. § The number of working hours constituting a full week's work in Queensland have been fixed by awards, as follows:—Central Division, underground work shall be done in three shifts of 48, 44, and 40 hours each week; payment to be made as though 48 hours had been worked in each week; Cloncurry and Cooktown, 44 hours per week. In Victoria the hours of labour for underground workers are 44 per week; and in South Australia 44½ hours for the day and 40 hours for the afternoon and night shifts. In Tasmania both 44 and 48 hours per week are worked by underground employees. See also explanatory notes on page 1110.

## WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania
GROUP VIII.—MINING—Continued.						
<b>Gold and Other Mining (except Coal).—Cont:</b>	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Miners (Dry Work) ...	<sup>ss</sup> a66 6	68 0	71 6	†	73 6	54 0
to 76 6	to 72 0	to 89 10		to 87 0	to 78 0	
„ (Wet Work) ...	<sup>ss</sup> a72 6	69 0	80 8	†	79 6	60 0
to 76 6	to 78 0	to 98 1		to 93 0	to 84 0	
„ (Machine) ...	<sup>ss</sup> a66 6	60 0	75 2	†	76 6	60 0
to 90 0	to 74 0	to 98 1		to 91 6	to 78 0	
Platmen ...	<sup>ss</sup> a57 0	59 0	63 3	75 0	72 0	54 0
to 72 0	& 60 6	to 89 10	& 79 0	to 82 6	to 69 0	
Shaftsinkers (Dry Work) ...	<sup>ss</sup> a66 0	66 0	75 2	†	76 6	60 0
to 84 0	to 74 0	to 98 1		to 91 6	to 78 0	
„ (Wet Work) ...	<sup>ss</sup> a72 0	72 0	80 8	†	82 6	66 0
to 90 0	to 80 0	to 98 1		to 97 6	to 84 0	
Shift Bosses ...	<sup>ss</sup> a66 0	64 0	80 0	93 6	90 0	63 0
to 84 0	to 70 0	to 109 1	to 104 6	to 120 0	to 90 0	
Timbermen ...	<sup>ss</sup> a66 0	64 6	75 2	87 0	78 0	55 0
to 82 6	to 72 6	to 98 1		to 93 0	to 81 0	

## GROUP IX.—RAILWAY AND TRAMWAY TRANSPORT.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
<b>Railways.†</b>	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Engine Drivers (Loco.)—\$	96 0	87 0	96 0	96 0	90 0	79 6
„ (1st class) ...			to 106 0			
„ (2nd „ ) ...	90 0	81 0	90 0	90 0	84 0	73 6
„ (3rd „ ) ...	84 0	69 0	84 0	84 0	78 0	70 6
„ (4th „ ) ...	78 0	to 75 0	to 94 0			& 73 6
„ (5th „ ) ...	72 0	69 0	78 0	78 0	72 0	67 6
			to 88 0			
Firemen (1st class)\$	66 0	60 0	78 0	75 0	66 0	64 6
„ (2nd „ )...	60 0	57 0	to 88 0			
„ (3rd „ )...	57 0	54 0	to 76 0	67 6	60 0	54 0
Guards (1st class) ...	75 0	72 0	60 0	63 0	57 0	51 0
„ (2nd „ ) ...	62 6	60 0	to 76 0		& 60 0	& 54 0
„ (3rd „ ) ...	to 72 0	to 69 0	to 97 6	75 0		69 0
	60 0	54 0	to 96 0		66 0	& 72 0
Porters ...	to 66 0		69 0	57 0		63 0
	55 6	54 0	to 81 0	to 72 0		& 66 0
	to 58 6	to 60 0	to 60 0	to 60 0		57 0
			to 69 0	& 63 6	57 6	48 0
						to 57 0

† Contract work.

† The hours of labour for Railway Employees are 48 per week (in N.S.W. 96 per fortnight) except in the following cases:—VICTORIA—Porters, 54 hours per week; SOUTH AUSTRALIA—Signalmen, 48 to 57 hours per week; and TASMANIA—Guards, Porters, Shunters, and Signalmen, 54 hours per week. Owing to the difference in the classification of grades of Railway Employees in the various States, only minimum and maximum rates are quoted, excluding those for Foremen. § In N.S.W. the rates of wage for 1st class Locomotive Drivers correspond to those fixed for Drivers driving express passenger or mail trains; 2nd to 5th class correspond to the rates of wage fixed for different lengths of service. The classification of Locomotive Drivers and Firemen employed in the Victorian Railway Service fixes different rates of wage for the following grades of service:—(1) Country Passenger Service; (2) First-grade Suburban Passenger Service; (3) Second-grade Passenger Service; and (4) Goods or Switching Service. The rates of wage for these services have been taken as corresponding to the 1st, 2nd, 3rd, and 4th class classification in the other States, with the exception that firemen for only three classes of service are graded. See also explanatory notes on page 1110.

## WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP IX.—RAILWAY AND TRAMWAY TRANSPORT—Continued.						
<b>Railways—Cont.</b>	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Shunters (1st class) ...	75 0	72 0	88 6	69 0	72 6	57 0
to 84 0 & 75 0			to 97 6			
„ (2nd „ ) ...	63 0	66 0	78 0	66 0	66 6	54 0
to 69 0 & 69 0			to 87 0			
„ (3rd „ ) ...	60 0	60 0	72 0	63 0	...	51 0
& 63 0			to 81 0			
„ (Ordinary) ...	60 0	57 0	66 0	60 0	60 6	...
to 60 0			to 75 0			
Signalmen (Special) ...	...	72 0	84 0	...	84 6	...
& 75 0			& 87 0			
„ (1st class) ...	75 0	66 0	81 0	78 0	75 6	57 0
& 78 0 & 69 0			to 90 0			& 60 0
„ (2nd „ ) ...	72 0	63 0	75 0	66 0	69 6	51 0
to 84 0			to 72 0			& 54 0
„ (3rd „ ) ...	69 0	60 0	69 0	60 0	63 6	...
to 78 0						
„ (4th „ ) ...	66 0	57 0	63 0	57 0	60 6	...
to 72 0						
<b>Tramways (Electric and Cable)</b>						
Car Washers or Cleaners ...	55 6	59 6	55 0	57 0	57 6	57 0
& 60 0					& 63 6	
Conductors—1st year ...	55 6	59 6	50 0	54 0	63 6	57 0
& 60 0			& 55 0	& 56 0		
„ 2nd year ...	57 6	62 6	55 0	56 0	63 6	57 0
& 63 0				& 58 0		
„ 3rd year ...	60 0	65 6	60 0	58 0	63 6	57 0
& 66 0				& 60 0		
Firemen (four fires) ...	67 0	68 6	68 0	66 0	*63 0	...
& 69 0						
„ (less than four fires) ...	62 6	65 6	64 0	...	*60 0	...
to 67 0 & 66 0						
Horse Drivers ...	58 6	62 6	56 0	57 0	<sup>25</sup> 63 6	57 0
& 63 0						
Labourers... ...	58 6	59 6	58 0	57 0	57 6	57 0
& 60 0			& 60 0			
Lamp Trimmers ...	55 6	62 6	...	...	...	...
& 63 0						
Maintenance men ...	58 6	59 6	60 0	57 0	57 6	60 0
to 63 0						
Motormen or Gripmen—						
1st year ...	60 0	59 6	50 0	58 0	57 6	57 0
& 60 0			& 55 0		& 63 6	
2nd year ...	63 0	62 6	55 0	60 0	63 6	60 0
& 63 0						
3rd year ...	66 0	65 6	60 0	63 0	63 6	63 0
& 66 0						
Night Watchmen ...	56 0	59 6	<sup>42</sup> 57 6	57 0	<sup>25</sup> 67 6	57 0
& 60 0						
Overhead Wiremen (Leading) *	80 0	68 6	72 6	63 0	69 6	63 0
& 69 0						
„ „ (Other) ...	*57 0	65 6	62 0	57 0	57 6	60 0
to 66 0 & 66 0			to 65 0			
Pitmen ...	68 0	68 6	60 0	56 0	60 6	63 0
& 69 0			to 75 6	to 60 0		
Signalmen ...	66 0	65 6	57 6	60 0	...	...
to 72 0		to 69 0	to 63 0	& 63 0		
Tower Wagon Drivers (Horse) <sup>25</sup>	61 6	62 6	57 0	57 0	<sup>25</sup> 63 6	61 0
to 66 0						
„ „ (Motor) <sup>25</sup>	67 0	...	...	63 0	...	...
Track Cleaners ...	55 6	59 6	50 6	57 0	57 6	57 0
& 60 0						
Trimmers or Fuel Men ...	55 6	...	58 0	60 0	*54 0	...
& 59 0						

\* For Sydney the wages quoted are those determined by State Awards. For Melbourne, Perth, Adelaide, and Hobart the rates are those specified in agreement registered under the Commonwealth Conciliation and Arbitration Act. For Brisbane, rates recently agreed to are quoted. See also explanatory notes on page 1110.

## WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP X.—OTHER LAND TRANSPORT.						
<b>Carrying (Merchandise).†</b>	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Carriers (One Horse) ...	<sup>4</sup> 9 <sup>a</sup> 58 0	<sup>1</sup> 7 <sup>6</sup> 1 0	<sup>2</sup> 2 <sup>6</sup> 1 0	<sup>1</sup> 7 <sup>6</sup> 1 0	61 0	<sup>1</sup> 7 <sup>6</sup> 1 0
„ (Two Horses) ...	<sup>4</sup> 9 <sup>a</sup> 63 0	<sup>1</sup> 7 <sup>6</sup> 6 0	<sup>2</sup> 2 <sup>6</sup> 6 0	<sup>1</sup> 7 <sup>6</sup> 4 0	66 0	<sup>1</sup> 7 <sup>6</sup> 6 0
„ (Three Horses) ...	<sup>4</sup> 9 <sup>a</sup> 67 0	<sup>1</sup> 7 <sup>6</sup> 8 0	<sup>2</sup> 2 <sup>6</sup> 9 0	<sup>1</sup> 7 <sup>6</sup> 5 0	68 0	<sup>1</sup> 7 <sup>6</sup> 8 0
Corporation Carters—						
(One Horse) ...	57 0	<sup>1</sup> 7 <sup>6</sup> 1 0	60 0	61 0	61 0	61 0
(Two Horses) ...	...	<sup>1</sup> 7 <sup>6</sup> 6 0	60 0	64 0	66 0	66 0
Jinkers (One Horse) ...	<sup>2</sup> 8 <sup>5</sup> 4 0	<sup>1</sup> 7 <sup>6</sup> 9 0	<sup>2</sup> 2 <sup>6</sup> 9 0	61 0	69 0	<sup>1</sup> 7 <sup>6</sup> 9 0
„ (Two Horses) ...	<sup>2</sup> 8 <sup>5</sup> 9 0	<sup>1</sup> 7 <sup>7</sup> 4 0	<sup>2</sup> 2 <sup>7</sup> 4 0	64 0	74 0	<sup>1</sup> 7 <sup>7</sup> 4 0
Sanitary Carters ...	65 0	<sup>1</sup> 7 <sup>6</sup> 5 0	<sup>1</sup> 7 <sup>6</sup> 5 0	...	65 0	65 0
Stable Hands ...	<sup>2</sup> 8 <sup>5</sup> 7 6	<sup>1</sup> 8 <sup>6</sup> 0 0	<sup>2</sup> 8 <sup>6</sup> 0 0	<sup>1</sup> 7 <sup>6</sup> 0 0	<sup>6</sup> 5 0	<sup>1</sup> 8 <sup>6</sup> 0 0
Tip Dray Drivers ...	& 62 6	<sup>1</sup> 7 <sup>6</sup> 1 0	<sup>2</sup> 2 <sup>6</sup> 1 0	...	61 0	61 0
Motor Lorries and Wagons‡						
Under 3 tons carrying capacity ...	<sup>1</sup> 8 <sup>a</sup> 62 0	66 0	65 0	65 0	66 0	66 0
3 tons carrying capacity...	<sup>1</sup> 8 <sup>a</sup> 75 0	74 0	73 0	65 0	74 0	74 0
<b>Carrying (Passenger).</b>						
Bus or Coach Drivers (Horse) ...	...	<sup>2</sup> 5 <sup>5</sup> 7 0	...	54 0	...	<sup>3</sup> 0 <sup>a</sup> 42 0
Chauffeurs ...	<sup>5</sup> 7 <sup>a</sup> 45 0	<sup>3</sup> 3 <sup>5</sup> 5 0	<sup>2</sup> 8 <sup>6</sup> 0 0	...	...	& 47 0
<b>Lift Attendants.</b>						
Goods ...	<sup>1</sup> 7 <sup>5</sup> 2 6	<sup>1</sup> 7 <sup>5</sup> 4 2	60 0	50 0*	...	<sup>3</sup> 3 <sup>a</sup> 45 0*
Passenger... ..	<sup>1</sup> 7 <sup>5</sup> 2 6	<sup>2</sup> 8 <sup>a</sup> 46 8	57 6	<sup>2</sup> 5 <sup>5</sup> 0 0*	...	<sup>3</sup> 3 <sup>a</sup> 45 0*
GROUP XI.—SHIPPING, WHARF LABOUR, ETC.						
<b>Shipping (Ferry Boats).</b>	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Deck Hands ...	48 0	...	...	...	...	<sup>3</sup> 9 <sup>b</sup> 40 0
Engineers ...	to 57 6	...	<sup>2</sup> 5 <sup>8</sup> 0 0	...	...	<sup>3</sup> 9 <sup>c</sup> 65 0
Firemen ...	67 6	...	& 85 0	...	...	<sup>3</sup> 9 <sup>c</sup> 42 0
Masters ...	to 97 6	...	<sup>2</sup> 5 <sup>7</sup> 0 0	...	...	<sup>3</sup> 9 <sup>c</sup> 42 0
Shipkeepers ...	50 0	...	...	...	...	<sup>3</sup> 9 <sup>c</sup> 42 0
Shipkeepers ...	to 69 0	...	<sup>2</sup> 5 <sup>8</sup> 0 0	...	<sup>1</sup> 2 <sup>7</sup> 0 0	<sup>3</sup> 9 <sup>a</sup> 60 0
Shipkeepers ...	67 6	...	& 85 0	...	<sup>2</sup> 5 <sup>7</sup> 0 0	<sup>3</sup> 9 <sup>a</sup> 60 0
Shipkeepers ...	to 97 6	...	...	...	...	...
<b>Towing (Tug Boats).</b>						
Engineers... ..	<sup>2</sup> 8 <sup>7</sup> 0 0	90 0	<sup>2</sup> 5 <sup>8</sup> 0 0	<sup>2</sup> 5 <sup>6</sup> 4 6	...	...
Firemen ...	to 85 0	...	<sup>2</sup> 5 <sup>6</sup> 0 0	to 80 0	...	...
Masters ...	57 6	69 3	& 71 6	<sup>2</sup> 5 <sup>6</sup> 9 0	...	...
Wharf Labourers	<sup>2</sup> 8 <sup>7</sup> 0 0	78 6	<sup>2</sup> 5 <sup>8</sup> 0 0	<sup>2</sup> 5 <sup>6</sup> 4 6	<sup>1</sup> 2 <sup>7</sup> 5 0	...
Wharf Labourers	to 85 0	to 87 8	...	to 80 0	...	...
<b>Waterside Working.</b>						
Coal Lumpers per hour	2 0	1 9	2 0	1 10	1 9	1 9
Lightermen ...	66 0	<sup>6</sup> 3 0	60 0	<sup>6</sup> 6 0	<sup>1</sup> 2 <sup>6</sup> 0 0	...
Wharf Labourers   per hour	1 9	1 9	1 9	1 9	1 9	1 9

† Hours quoted for Melbourne came into force on 1st January, 1918. ‡ Hours quoted for Brisbane came into force on 16th January, 1918. || Rate of wage quoted is for other than special cargo. See also explanatory notes on page 1110.

## WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
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GROUP XI.—SHIPPING, WHARF LABOUR, ETC.—Continued.						
<b>Passenger Vessels (Intra-state).†</b>	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Cooks (Chief) ... per month	185 0	*310 0	240 0	...	240 0	160 0
	to 295 0	& 340 0				
„ (Second) ... „	155 0	*220 0	140 0	...	140 0	130 0
	to 195 0					
„ (Third) ... „	155 0	*170 0	100 0	...	100 0	...
„ (Ship's) ... „	195 0	*200 0	...	...	...	...
Pantrymen ... „	165 0	190 0	130 0	...	130 0	...
„ Assistant ... „	135 0	170 0	110 0	...	110 0	...
Stewards ... „	120 0	170 0	100 0	...	100 0	110 0
	to 150 0	to 210 0	to 150 0		to 150 0	
<b>Passenger Vessels (Interstate).†</b>		s.			s.	
Bakers ... per month		240			260	
Barmen ... „		170			170	
Butchers ... „		180			200	
Cooks (Chief) ... „		310			340	
„ (Second) ... „		220			220	
„ (Third) ... „		170			170	
„ (Ship's) ... „		200			200	
Pantrymen ... „		190			190	
„ (Assistant) ... „		160 & 170			160 & 170	
Chief Saloon Stewards ... „		180			180	
Second ... „		210			210	
Second Saloon ... „		210			210	
Fore Cabin ... „		190			190	
Bedroom and other ... „		170			170	
	Wages in Vessels of 4000 tons Gross Register and under.			Wages in Vessels of over 4000 tons Gross Register.		
<b>All Vessels (Interstate).†</b>		s.				
A.B. Seamen ... per month		220				
Boatswains ... „		240				
Donkeymen ... „		280				
Firemen ... „		260				
Greasers ... „		260				
Lamp Trimmers ... „		240				
Fuel ... „		220				
	<b>LOWEST CLASS.</b>			<b>HIGHEST CLASS.</b>		
	<i>Under 100 N.H.P.</i>			<i>600 or more N.H.P.</i>		
<b>Marine Engineers.††</b>	s. d.			s.		
Chief ... per month	506 0			782		
Second ... „	402 6			506		
Third ... „	356 6			414		
Fourth ... „	...			345		
5th, 6th, 7th, 8th ... „	...			276		
	<b>INTERSTATE</b>			<b>INTERSTATE</b>		
	<b>PASSENGER VESSELS.</b>			<b>CARGO VESSELS.</b>		
	<i>Lowest</i>	<i>Highest</i>		<i>Lowest</i>	<i>Highest</i>	
	<i>Class, 125 tons &amp; under.</i>	<i>Class, over 10,000 tons.</i>		<i>Class, 60 tons &amp; under.</i>	<i>Class, over 4000 tons.</i>	
<b>Merchant Service.†‡</b>						
Masters ... per month	460s.	1360s.		380s.	780s.	
Officers, Chief ... „	360s.	520s.		300s.	420s.	
„ Second ... „	300s.	460s.		260s.	360s.	
„ Third ... „	...	400s.		...	320s.	
„ Fourth & Fifth ... „	...	260s.		...	260s.	

† Rates of wage quoted are in addition to victualling. † Minimum rates under the Industrial Agreement are classified according to nominal horse-power of vessels; the lowest and highest classes are here specified. ‡ Minimum rates under the Commonwealth Award are classified for Interstate vessels, and for vessels within a State according to tonnage; the lowest and highest classes for Interstate passenger and cargo vessels are here given.

See also explanatory notes on page 1110.



## WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.
GROUP XII.—AGRICULTURAL, PASTORAL, ETC.						
<b>Farming.</b>	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
General Hands*§ ...	20 0	20 0	25 0	25 0	30 0	20 0
	to 30 0	to 25 0	to 30 0	to 35 0	to 40 0	to 25 0
Harvesters*§ ...	40 0	40 0	40 0	40 0	35 0	30 0
	to 50 0	to 50 0	to 50 0	to 50 0	to 50 0	to 40 0
Milkers*§ ...	20 0	25 0	20 0	25 0	30 0	15 0
	to 30 0	to 30 0	to 30 0	to 35 0	to 40 0	to 25 0
Ploughmen*§ ...	25 0	30 0	25 0	25 0	30 0	20 0
	to 35 0	to 35 0	to 35 0	to 37 6	to 45 0	to 30 0
Chaff Cutters (Portable) ...	...	60 0	...	...	...	30 60 0
„ (Stationary) ...	...	60 0	...	56 0	...	30 56 0
				to 65 10½		
Thresher (Feeders) ...	...	...	...	...	...	30 65 0
„ (Machinists) ...	...	...	...	...	...	30 56 0
<b>Gardening.</b>						
Gardeners ...	65 0	54 0	54 0	51 0*	60 0	*60 0
			to 60 0			
„ (Labourers) ...	48 0	51 0	55 6	51 0*	60 0	*48 0
						to 54 0
Nurserymen ...	54 0	51 0	*65 0	51 0*	60 0	*60 0
„ (Labourers) ...	48 0	42 0	*55 0	45 0*	*54 0	*48 0
						to 54 0
<b>Pastoral Workers.</b>						
Cooks§ ...	72 0	72 0	72 0	72 0	80 0	60 0
Shearers ... per 100	30 0	30 0	30 0	30 0	27 6	28 0
Shed Hands§ ...	60 0	60 0	60 0	60 0	65 0	50 0
Wool Pressers§ ...	80 0	80 0	80 0	80 0	100 0	60 0
<b>Rural Workers.</b>						
Fruit Harvesters per hour ...	...	1 3½	...	1 3½	...	...

§ Rates of wage quoted are in addition to board and lodging provided.

## GROUP XIII.—DOMESTIC, HOTELS, ETC.

NOTE.—Except where otherwise specified the rates of wage mentioned for Employees in Clubs, Hotels, and Restaurants represent the weekly cash payment where Board and Lodging are provided. If Board and Lodging are not provided, payment has to be made, in lieu thereof, upon an estimated value, fixed by Industrial Tribunals for the Capital Towns as follows: Sydney, 15s. 6d. to 19s.; Melbourne, 14s.; Brisbane, 15s.; Adelaide, 15s.; Perth, 22s.; and Hobart, 15s. per week. Of this sum 10s. per week is allocated as value of Board in each instance, with the exception of Sydney and Perth. In Sydney the allowance for Board varies from 10s. 6d. to 14s., according to class of establishment in which worker is employed. In Perth the allowance for Board is 17s. per week.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
<b>Clubs (Residential).</b>	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Barmen ...	40 27 0	25 45 0	33 30 0	19 65 0*	25 65 0*	31 35 0
			& 42 6			
Billiard Markers ...	40 24 0	31 31 0	33 50 0	28 25 0	...	31 30 0
		& 86 0		& 30 0		
<b>Cooks (Hotels, Clubs, etc.).</b>						
Chefs ...	153 9	31 45 0	63 6	28 47 6	28 45 0	31 35 0
	to 100 0	to 65 0	& 68 6	to 80 0	to 80 0	to 80 0
Cooks (Second) ...	145 0	31 43 0	51 0	28 45 0	28 40 0	31 27 6
	to 70 0	to 48 0		& 55 0	& 45 0	to 60 0
„ (Third) ...	135 0	31 40 0	51 0	28 40 0	28 35 0	31 25 0
	to 60 0	& 43 0		& 45 0		to 45 0
Kitchenmen ...	26 6	31 30 0	43 6	28 25 0	28 25 0	31 20 0
				& 30 0		
Lift Attendants ...	31 22 6	28 46 8†	...	28 25 0	...	...
Porters (Day) ...	40 25 0	31 30 0	33 35 0	28 30 0	28 25 0	31 20 0
„ (Night) ...	40 25 0	31 32 6	33 25 0	28 25 0	28 32 0	31 22 6

† Not in addition to Board and Lodging. † In hotels employees work 55 hours per week, and in restaurants 48 and 58 hours, according to class of establishment. § 48 and 54 hours per week. See also explanatory notes on page 1110.

## WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP XIII.—DOMESTIC, HOTELS, ETC.—Continued.						
<b>Hairdressing.</b> †	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Full Hands ...	1 <sup>9</sup> 65 0	1 <sup>9</sup> 70 0	...	...	...	...
Hairdressers ...	1 <sup>9</sup> 60 0	1 <sup>9</sup> 60 0	60 0	1 <sup>9</sup> 62 6	2 <sup>2</sup> 60 0	2 <sup>3</sup> 55 0*
<b>Hotels.</b>						
Barmen ...	2 <sup>8</sup> 41 6	2 <sup>5</sup> 45 0	3 <sup>3</sup> 30 0	2 <sup>5</sup> 65 0†	2 <sup>5</sup> 65 0†	3 <sup>1</sup> 30 0
Billiard Markers ...	3 <sup>1</sup> 25 0	3 <sup>1</sup> 31 0	3 <sup>3</sup> 25 0	2 <sup>8</sup> 25 0	...	3 <sup>1</sup> 22 6
Handymen ...	3 <sup>1</sup> 36 6	& 36 0 3 <sup>1</sup> 25 0	3 <sup>3</sup> 22 6	& 30 0 3 <sup>3</sup> 25 0	2 <sup>8</sup> 25 0	3 <sup>1</sup> 15 0
Kitchenmen ...	3 <sup>0</sup> 41 6	3 <sup>1</sup> 30 0	2 <sup>5</sup> 43 6	to 30 0 2 <sup>8</sup> 25 0	2 <sup>8</sup> 32 0	to 20 0 3 <sup>1</sup> 20 0
Lift Attendants ...	3 <sup>1</sup> 41 6	2 <sup>8</sup> 46 8	...	& 30 0	...	...
Porters (Day) ...	3 <sup>1</sup> 41 6	3 <sup>1</sup> 30 0	3 <sup>3</sup> 25 0	2 <sup>8</sup> 30 0	2 <sup>8</sup> 25 0	3 <sup>1</sup> 20 0
„ (Night) ...	3 <sup>1</sup> 41 6	3 <sup>1</sup> 32 6	3 <sup>3</sup> 25 0	2 <sup>8</sup> 25 0	2 <sup>8</sup> 32 0	3 <sup>1</sup> 22 6
Waiters (Head) ...	2 <sup>8</sup> 51 6	3 <sup>1</sup> 42 0	3 <sup>3</sup> 35 0	2 <sup>8</sup> 42 6	...	3 <sup>1</sup> 25 0
„ (Other) ...	2 <sup>8</sup> 41 6	3 <sup>1</sup> 34 0	3 <sup>3</sup> 20 0	& 45 0 2 <sup>8</sup> 30 0	2 <sup>8</sup> 37 6	to 40 0 3 <sup>1</sup> 20 0
<b>Restaurants.</b>						
Pantrymen ...	1 <sup>4</sup> 2 6 to 45 0	3 <sup>1</sup> 30 0	† 57 6	25 0 & 30 0	2 <sup>8</sup> 32 0	3 <sup>1</sup> 25 0
Waiters ...	1 <sup>4</sup> 4 3 & 45 0	3 <sup>1</sup> 34 0	† 57 6	25 0 to 35 0	2 <sup>8</sup> 37 6	3 <sup>1</sup> 20 0

## GROUP XIV.—MISCELLANEOUS AND GENERAL LABOUR.

<b>Bill Posting.</b>	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Billposters ...	57 6	56 0	* 57 6 to 65 0	5* 50 0 to 55 0	* 60 0	* 50 0
<b>Factory Engine Driving.</b>						
Engine Drivers (Stationary)						
1st class ...	73 6	66 0	84 0	69 0	75 0	* 63 0
2nd class ...	& 75 0 71 6	to 75 0 60 0	76 0	to 75 0 66 0	72 0	to 75 0 * 60 0
3rd class ...	& 72 0 67 0	to 72 0 57 0	78 0	to 72 0 60 0	69 0	to 72 0 * 57 0
Firemen (1st Class)	& 69 0 66 0	to 69 0 60 0	66 0	to 69 0 56 0	66 0	to 69 0 * 54 0
„ (2nd Class)	& 67 0 62 6	to 66 0 57 0	...	58 0	64 6	to 64 6 * 51 0
Greasers ...	to 64 6 62 6	to 64 6 54 0	66 0	to 64 6 54 0	63 0	to 63 0 * 45 0
Trimmers ...	& 63 0 62 6	to 63 0 54 0	60 0	to 63 0 54 0	60 0	to 60 0 * 45 0
<b>Fuel Distribution (Coal &amp; Coke).</b>						
Baggers and Loaders	59 0	70 0	...	48 0	...	* 59 0
Carters (One Horse)	59 0	1 <sup>8</sup> 61 0	1 <sup>8</sup> 61 0	48 0	61 0	1 <sup>7</sup> 61 0
„ (Two Horses)	64 0	1 <sup>8</sup> 66 0	1 <sup>8</sup> 66 0	50 0	66 0	1 <sup>7</sup> 66 0
Trimmers ...	& 67 0 59 0	84 0	...	48 0	...	* 62 0

† Not in addition to Board and Lodging. ‡ In hotels employees work 55 hours per week, and in restaurants 48 and 58 hours, according to class of establishment. See also explanatory notes on page 1110.

## WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP XIV.—MISCELLANEOUS AND GENERAL LABOUR—Continued.						
<b>Fuel Distribution (Firewood).</b>	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Carters (One Horse)† ...	59 0	1 <sup>9</sup> 57 6	1 <sup>9</sup> 61 0	48 0	61 0	1 <sup>7</sup> 61 0
„ (Two Horses)† ...	64 0	1 <sup>9</sup> 62 6	1 <sup>9</sup> 66 0	50 0	66 0	1 <sup>7</sup> 66 0
Other Adults ...	59 0	1 <sup>7</sup> 55 0	1 <sup>8</sup> 57 6*	49 0	...	...
Sawyers ...	59 0	62 6	48 0	57 6	...	*60 0
Yardmen ...	59 0	1 <sup>7</sup> 55 0	1 <sup>8</sup> 57 6*	48 0	...	*54 0
			to 61 0			
<b>Lamp Lighting.</b>						
Lamp Lighters ...	2 <sup>8</sup> 63 0	63 0	60 0	61 6	55 0	\$59 0
<b>Marine Stores.</b>						
Bottle Washers ...	54 0	54 0	*50 0	57 0	60 0	...
Foremen ...	*59 0	60 0	*57 0	63 0	...	...
General Hands ...	54 0	50 0	*54 0	57 0	60 0	...
<b>Municipal.</b>						
Labourers... ..	62 0	*55 0	60 0	*54 0	60 0	*51 0
	& 64 0	to 62 0		& 57 0		
Street Sweepers ...	57 0	*55 0	60 0	*54 0	60 0	*51 0
		to 62 0		& 57 0		
<b>Musicians.</b>						
Orchestral ...	1 <sup>1</sup> 1 <sup>a</sup> 60 0	1 <sup>1</sup> 1 <sup>a</sup> 60 0	1 <sup>1</sup> 1 <sup>a</sup> 60 0	1 <sup>1</sup> 1 <sup>a</sup> 60 0	1 <sup>1</sup> 1 <sup>a</sup> 60 0	1 <sup>1</sup> 1 <sup>a</sup> 60 0
	to 80 0	& 75 0	& 75 0	& 75 0	& 75 0	& 75 0
<b>Shop and Other Assistants.</b>						
Boot Salesmen† ...	57 0	44 0	40 0	1 <sup>4</sup> 64 0	57 6	...
	to 66 6	to 60 0	to 63 0			
Chemists' Assistants ...	70 0	...	2 <sup>2</sup> 40 0	2 <sup>2</sup> 55 0	...	...
			to 70 8	to 80 0		
Clerks ...	55 6	54 0	1 <sup>7</sup> 40 0	...	...	...
	to 63 0	& 58 0	to 60 0			
Confectionery Salesmen ...	2 <sup>5</sup> 52 6	...	40 0	...	57 6	...
			to 63 0			
Drapery Salesmen ...	57 0	60 0	40 0	1 <sup>4</sup> 64 0	57 6	1 <sup>2</sup> 40 0*
	to 66 6	to 65 0	to 63 0			to 70 0
Fruit Salesmen ...	2 <sup>5</sup> 52 6	...	40 0	...	...	...
			to 63 0			
Furniture Salesmen ...	57 0	67 6	40 0	1 <sup>7</sup> 65 0*	62 6	1 <sup>2</sup> 40 0*
	to 66 6		to 63 0			to 70 0
Grocery Salesmen ...	60 0	1 <sup>7</sup> 55 0	40 0	1 <sup>7</sup> 55 0	57 6	60 0
	to 65 0	to 60 0	to 63 0	& 61 0		
Newsagents' Assistants ...	55 6	...	40 0	1 <sup>4</sup> 64 0	...	...
	to 61 0		to 63 0			
Railway Bookstall Assistants ...	55 6	...	40 0	...	...	...
	to 61 0		to 63 0			
Tobacconists' Salesmen ...	55 6	...	40 0	...	...	...
	to 61 0		to 63 0			
<b>Clothing (Men's).†</b>						
Collectors, Doormen, and Travellers ...	57 0	65 0	...	...	...	...
	to 66 6	& 67 6				
Departmental Managers ...	70 0	75 0	...	...	...	...
	& 75 0					
Parcels Officemen ...	...	54 0	...	...	...	...
Salesmen ...	57 0	47 6	40 0	1 <sup>4</sup> 64 0	57 6	1 <sup>2</sup> 40 6*
	to 66 6	to 67 6	to 63 0			to 72 0

† Hours quoted for Hobart came into force on 1st January, 1918. § Number of hours per week not regulated. ‡ Sydney rates from 1st January, 1918. See also explanatory notes on page 1110.

## WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP XIV.—MISCELLANEOUS AND GENERAL LABOUR—Continued.						
<b>Shop &amp; Other Assistants (cont.)</b>						
<b>Hardware.</b>	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Managers (Branch) ...	70 0	1780 0	...	17100 0	...	...
& 75 0						
„ (Departmental) ...	70 0	1780 0	...	1785 0	*90 0	1590 0
& 75 0				& 90 0		
Salesmen (Junior) ...	29 0	745 0	...	1742 6	...	1540 0
to 44 0		to 60 0		to 57 6		to 55 0
„ (Outside) ...	...	1770 0	...	1750 0	...	...
to 72 6						
„ (Senior) ...	57 0	1765 0	40 0	1760 0	62 6	1560 0
to 66 6			to 63 0	& 63 0		
<b>Storemen-Packing, Cleaning, etc.</b>						
Night Watchmen ...	4255 0	3760 0	3763 0	2860 0	56 0	3740 0*
to 55 0						to 55 0
Office Cleaners ...	53 6	56 0	60 0	...	...	...
Packers (General) ...	1356 0	62 0	1060 0	1758 0	57 6	48 0
to 60 0						
Storemen (General) ...	1354 6	62 0	1060 0	1758 0	57 6	48 0
to 60 0						
<b>Wholesale Grocery.</b>						
Packers (Head) ...	59 6	60 0	1064 0	71 0	*60 0	57 6
to 81 0		to 75 0	to 89 0			
„ (Other) ...	56 0	58 0	1060 0	58 0	57 6	50 0
Storemen (Head) ...	59 0	65 0	1064 0	71 0	*70 0	57 6
to 81 0		to 85 0	to 89 0			
„ (Other) ...	54 6	65 0	1060 0	58 0	57 6	50 0
<b>Wholesale Hardware.</b>						
Packers ...	1360 0	1752 6	1440 0	1758 0	57 6	1545 0
to 55 0			to 55 0			to 55 0
Storemen ...	1358 6	1752 6	1440 0	1758 0	57 6	1545 0
to 60 0			to 55 0			to 55 0
<b>Surveying.</b>						
Surveyors (Cooks) for 7 days	60 0	2870 0*	\$70 0	25*70 0	63 0	...
to 70 0					to 70 0	
„ (Foremen) ...	63 0	*66 0	...	...	72 0	...
„ (Labourers) ...	57 6	*48 0	\$60 0	*60 0	60 0	...
to 60 0						

† Sydney rates from 1st January, 1918.

§ Number of hours per week not regulated.

## MINIMUM RATES OF WAGE FOR ADULT FEMALE WORKERS IN THE MAIN OCCUPATIONS IN THE CAPITAL TOWN OF EACH STATE FOR A FULL WEEK'S WORK, AT 31st DECEMBER, 1917.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP III.—FOOD, DRINK, TOBACCO, ETC.						
Biscuitmaking ...	s. d. 25 0	s. d. 27 6	s. d. 28 6	s. d. *25 0	s. d. *20 0	s. d. ...
to 30 0					to 30 0	
Buttermaking ...	...	30 0	...	*30 0	...	...
Cheesemaking ...	...	30 0	...	*25 0	...	...
Confectionery-Chocolate Dippers†	24 0	30 0	28 6	22 0	20 0	...
to 22 6					to 22 6	
„ Other Adults ...	20 0	28 0	28 6	21 0	20 0	*15 0
to 24 0					to 22 6	
<b>Jam Making and Preserving—</b>						
Fillers ...	25 0	31 6	*18 0	25 0	*20 0	27 0
& 33 0			to 25 0		to 30 0	
Other Adults ...	23 0	26 0	*18 0	25 0		22 6
to 25 0			to 25 0			

† Melbourne rates from 2nd January, 1918.

See also explanatory notes on page 1110.

## WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUP III.—FOOD, DRINK, TOBACCO, ETC.—Continued.						
Pastrycooks ...	s. d. 25 6 to 45 0	s. d. 27 0	s. d. 30 0	s. d. ...	s. d. ...	s. d. ...
Tea Packing—Headwomen ...	*27 6 to 30 0	35 0	...	...	...	...
„ Other Adults ...	*24 0	29 0	*24 0*	*30 0	...	...
Tobacco Working (Cigars)—			to 30 0			
Ringers ...	25 0	24 0	...	*20 0	...	...
Wrapper Leaf Strippers ...	25 0	25 0	...	*25 0	...	...
GROUP IV.—CLOTHING, HATS, BOOTS, ETC.						
Bootmaking—	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Machinists (Wax Thread) ...	38 6	38 6	31 0	33 0	...	35 0
Other Adults ...	31 0	31 0	31 0	30 0	31 0	28 0
Dressmakers ...	<sup>10</sup> a27 6 to 35 0	28 0	*20 0 to 27 6	25 0 & 27 6	*25 0 to 30 0	<sup>12</sup> 25 0* to 35 0
Dyers and Cleaners ...	*30 0	25 0	*22 0 to 32 6*	*25 0 to 30 0	*30 0 33 0	...
Hatmaking (Straw)—Finishers	<sup>10</sup> a25 0	*30 0	<sup>12</sup> a20 0 to 22 6*	...	...	...
„ Machinists	<sup>10</sup> a30 0	*35 0	<sup>12</sup> a37 6*	...	...	...
Milliners ...	*25 0	25 0	*25 0 to 30 0	25 0 to 30 0	*25 0 to 30 0	*25 0*
Shirtmakers ...	30 0	27 6	<sup>12</sup> a27 6	24 0 & 26 0	*25 0	*22 0
Tailoring (Order)—						
Machinists (Coat Hands) ...	35 0	30 6	36 0	25 6	40 0	25 0
„ (Trouser, Vest Hands)	31 0	30 6	32 6 & 36 0	25 6	40 0	to 47 6 25 0
Tailoresses (Coat Hands) ...	38 0	32 6	36 0	26 0	45 0	32 6
„ (Trouser, Vest Hands)	34 0	30 6	32 6	24 0	35 0	to 39 6 30 6
Tailoring (Ready Made)—						
Machinists (Coat Hands) ...	25 0	29 6	<sup>12</sup> a29 6	28 0	40 0	<sup>5b</sup> 25 0
„ (Trouser, Vest Hands)	23 0	29 6	<sup>12</sup> a28 0	28 0	40 0	<sup>5b</sup> 25 0
Tailoresses (Coat Hands) ...	29 6	29 6	<sup>12</sup> a29 6	27 6	45 0	<sup>5b</sup> 25 0
„ (Trouser, Vest Hands)	28 0	28 0	<sup>12</sup> a28 0	25 0	35 0	<sup>5b</sup> 23 6
Textile Working (Woollen Mills)						
Comb Minders ...	31 0	27 6	30 0	*27 6	...	22 6
Drawers and Menders ...	35 0 & 40 0	27 6	30 0	*27 6	...	22 6
Gillbox Minders ...	31 0	27 6	30 0	*27 6	...	22 6
Other Adults ...	31 0	27 6	30 0	*22 0 to 27 6	...	22 6
Warpers ...	35 0 & 40 0	35 0	38 0	*25 0 to 35 0	...	22 6
Weavers, Loom ...	40 0	35 0	38 0	*30 0 to 35 0	...	22 6
Tiemaking—						
Machinists ...	30 0	20 0 & 22 6	...	...	...	...
Needlewomen ...	*22 6 to 27 6	22 6 & 25 0	...	...	...	...
Pressers, Boxers and others ...	*20 0 to 25 0	20 0	...	...	...	...
Underclothing ...	*20 0 to 25 0	28 0 to 33 0	*25 0	24 0	*25 0	*22 0*
Waterproof Clothing—						
Garmentmakers ...	*25 0	31 0	...	...	...	...
Needlewomen ...	to 30 0	31 0	...	...	...	...

See explanatory notes on page 1110.

## WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
GROUPS I., II., V. AND VI.—PRINTING AND OTHER MANUFACTURES.						
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Bedding and Furniture—						
Bedding Machinists ...	30 0	30 0	<sup>6</sup> 30 3	28 6	...	32 0
Mattress (Wire) Workers ...	36 0	36 0	<sup>6</sup> 66 0	25 6	...	32 0
Picture Frame Workers ...	<sup>6</sup> 30 0	<sup>6</sup> 26 0	...	...	...	...
Bookbinding—Folders ...	<sup>7</sup> 28 0	28 6	25 0	26 0	25 0	<sup>6</sup> 27 6
„ Sewers ...	<sup>7</sup> 30 0	31 0	25 0	26 0	to 30 0*	<sup>6</sup> 28 0
	& 35 0					
Brassworking—Coremakers ...	37 0	30 0	...	...	...	...
„ Other Adults ...	20 0	20 0	...	...	...	...
		to 25 0				
Brushmaking—						
Bass Broom Drawers ...	32 0	...	...	21 0	...	...
Bench Drawers ...	32 0	21 0	...	21 0	...	...
Machinists (Treadle Knot) ...	32 0	21 0	...	21 0	...	...
Candlemaking—Forewomen ...	30 0	32 6	21 6	32 6	...	...
Cardboard Box Making—						
Box Makers ...	<sup>*</sup> 27 6	28 0	<sup>*</sup> 25 0	26 0*	20 0*	...
		& 32 6	to 30 0		to 30 0	
Other Adults ...	20 0	26 0	<sup>*</sup> 20 0	22 6*	25 0*	...
	to 22 6*		to 25 0		to 25 0	
Jewellers†—						
Chainmakers ...	39 6	38 6	...	60 0§	...	...
	& 44 6					
Enamel Fillers ...	21 0	...	...	60 0§	...	...
	to 31 6					
Gilders ...	39 6	40 0	<sup>12</sup> 27 6	40 0§	...	...
		& 50 0	to 35 0*		...	...
Polishers ...	39 6	40 0	40 0	40 0§	...	...
		& 50 0			...	...
Scratch Brushers ...	39 6	35 0	...	40 0§	...	...
Workers, n.e.i. ...	44 6	58 0	...	60 0§	...	...
Leather Small Goods—						
Hand Stitchers ...	30 0	30 0	30 0	30 0	...	30 0
Other Adults ...	30 0	30 0	30 0	30 0	...	30 0.
Paper Makers‡	22 6	27 0	...	...	...	...
Paper Bag Makers ...	26 0	25 0	20 0*	25 0*	...	...
		& 28 0	to 25 0	& 27 6	...	...
Polish Makers ...	20 0*	32 6	...	32 6	...	...
	to 30 0					
Portmanteau Makers... ..	30 0	30 0	30 0	30 0	...	30 0
Pottery—Adults ...	20 0	25 0	32 6	...	...	...
Printing  —						
Jobbing Office Assistants ...	<sup>7</sup> 26 0	28 6	25 0	26 0	20 0*	<sup>6</sup> 27 6
					to 25 0	
Lithographic Feeders ...	<sup>7</sup> 28 0	28 6	25 0	26 0	...	<sup>6</sup> 27 6
Rubber Workers ...	28 0	31 0	...	...	...	...
Saddlery and Harness Makers ...	30 0	30 0	30 0	30 0	30 0	30 0
Sail Makers ...	30 0	29 0	<sup>9</sup> 25 0	30 0*	<sup>12</sup> 25 0*	...
			to 30 0*		to 40 0	
Soap Makers ...	21 0	32 6	...	32 6	...	...
Tent and Tarpaulin Making—						
Machinists ...	<sup>12</sup> 27 6	29 0	<sup>13</sup> 21 0*	30 0*	<sup>12</sup> 25 0	...
	to 32 6		to 30 0		to 30 0*	
Wickerworkers ...	25 0*	...	...	40 0	...	...

† Melbourne rates from 19th January, 1918. ‡ Melbourne rates from 10th January, 1918.  
 § Hours of labour per week: 48 (daylight), 45 (artificial light). || Sydney rates from 1st January, 1918. See also explanatory notes on page 1110.

## WEEKLY RATES OF WAGE, ETC.—Continued.

Industry and Occupation.	Sydney.	Melb.	Brisbane.	Adelaide.	Perth.	Hobart.
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## GROUP XIII.—DOMESTIC, HOTELS, ETC.

NOTE.—Except where otherwise specified the rates of wage mentioned herein for Employees in Hotels and Restaurants represent the weekly cash payment where Board and Lodging are provided. If Board and Lodging are not provided, payment has to be made in lieu thereof, upon an estimated value, fixed by Industrial Tribunals for the Capital Towns as follows: Sydney, 15s. 6d. to 19s.; Melbourne, 14s.; Brisbane, 15s.; Adelaide, 15s.; Perth, 22s.; and Hobart, 15s. per week. Of this sum 10s. per week is allocated as value of Board in each instance.

	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
<b>Hotels—</b>						
Barmaids ...	17 29 0	17 30 0	27 25 0	25 55 0*	† 65 0	31 20 0
Housemaids ...	28 18 0	28 18 0	33 15 0	28 18 6	19 20 0	& 25 0
Laundresses ...	23 6	28 26 0	20 0	& 20 0	...	& 15 0
Waitresses (Head) ...	28 24 0	28 21 0	...	* 30 0	...	...
„ (Other) ...	28 24 0	28 18 0	28 15 0	28 20 0	19 22 6	31 20 0
<b>Laundries—</b>						
General Hands ...	21 0	* 25 0	* 25 0	20 0	36 0	24 0
Machinists (Shirt and Collar)	25 0	28 0	* 27 6	20 0	42 0	24 0
Sorters ...	25 0	* 26 0	20 0	22 0	36 0	24 0
Starchers ...	25 0	* 24 0	* 25 0	20 0	36 0	24 0
Washers ...	25 0	* 24 0	* 25 0	20 0	36 0	24 0
Office Cleaners ...	3 21 0	2 27 6	42 0	10 20 0*	...	* 11 10 0
Restaurants—Pantry Maids ...	\$19 6	28 17 0	† 34 0	17 6	19 20 0	31 15 0
„ Waitresses ...	to 24 6	28 18 0	† 34 0	20 0	19 22 6	31 15 0
	\$19 3	28 18 0	† 34 0	& 25 0		

## GROUP XIV.—SHOP ASSISTANTS, CLERKS, ETC.

	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
<b>Clerks, etc.—</b>						
Cashiers ...	27 6	33 0	22 6	* 30 0	34 6	* 20 0
Clerical Assistants ...	to 38 6	37 0	to 35 0	* 25 0	...	to 25 0
<b>Saleswomen—†</b>						
Boot ...	27 6	27 6	22 6	14 25 0	34 6	* 20 0
Drapery ...	to 38 6	32 0	to 35 0	to 31 6	34 6	to 30 0
Fruit and Confectionery ...	25 20 0	...	22 6	14 25 0	34 6	* 20 0
News Agent and Bookstall ...	27 6	...	22 6	to 31 6	...	* 18 0
Tobacconist ...	to 35 0	...	to 35 0	...	...	to 20 0
	30 0	...	22 6	...	...	* 20 0
	to 42 6	...	to 35 0	...	...	to 25 0

† Not in addition to Board and Lodging. † Sydney rates from 1st January, 1918. § Hours vary, 48 are worked in some establishments and 56 in others. || Hours not regulated. See also explanatory notes on page 1110.

## § 6. Industrial Disputes.

1. **General.**—Information with regard to the collection of particulars and methods of tabulation of industrial disputes has appeared in previous issues of the Year Book, and is also given in the Annual Reports of the Labour and Industrial Branch of this Bureau.

In the following tabulations particulars are included only with respect to the industrial disputes which commenced during any calendar year.\* This course requires the

\* Any tabulations as to causes, duration, etc., based on disputes which were in existence in any given year, and not on those which commenced in that year, would inevitably result in confusion, seeing that particulars relating to the same dispute would probably occur in two successive years.

elimination of such data as relate to disputes which commenced during an earlier period, but which remained unsettled during some portion of the succeeding year. On the other hand it necessitates the inclusion of the number of working days and wages lost during the following year in connection with disputes commenced during the calendar year to which the statistics relate.

2. **Comparative Summary of Disputes in 1913 to 1917.**—The systematic collection of information as to industrial disputes (causing a stoppage of work) throughout the Commonwealth was first undertaken as from the 1st January, 1913, and particulars concerning disputes occurring during the year 1913 were published in Labour Report No. 5. The following table gives particulars of the number of industrial disputes which began in the years 1913, 1914, 1915, 1916, and 1917 respectively, together with the number of workpeople involved, the number of working days lost, and the total estimated loss in wages in each State and Territory comprising the Commonwealth:—

**INDUSTRIAL DISPUTES IN EACH STATE AND TERRITORY.—COMPARATIVE PARTICULARS FOR 1913 to 1917.**

State or Territory.	Year.	No. of Disputes.	Estab- lish- ments Involved in Disputes.	No. of Workpeople Involved.			No. of Working Days Lost.	Total Estimated Loss in Wages.
				Directly.	In- directly.	Total.		
								£
N. S. Wales ...	1913	134	466	25,647	14,364	40,011	468,957	216,368
	1914	235	908	33,955	22,326	56,281	836,948	419,656
	1915	272	694	47,006	22,608	69,614	464,343	240,322
	1916	336	717	91,762	31,638	123,400	1,145,223	674,064
	1917	296	918	118,515	15,508	134,023	3,308,869	1,929,405
Victoria ...	1913	29	63	4,151	2,026	6,177	85,213	35,744
	1914	44	164	5,699	1,352	7,051	84,106	39,619
	1915	33	154	5,434	809	6,243	64,878	28,476
	1916	55	449	13,575	2,092	15,668	223,269	114,683
	1917	52	636	15,976	2,114	18,090	760,410	378,946
Queensland ...	1913	17	20	1,781	225	2,006	55,288	28,374
	1914	18	42	1,280	406	1,686	25,703	11,747
	1915	17	39	1,477	589	2,066	19,934	9,505
	1916	64	252	17,367	2,951	20,318	170,690	96,976
	1917	39	202	12,074	971	13,045	317,699	178,125
South Australia ...	1913	9	13	272	16	288	2,412	1,029
	1914	13	45	616	575	1,191	15,275	7,677
	1915	15	25	1,314	169	1,483	19,877	14,442
	1916	21	44	1,037	605	1,643	10,583	6,004
	1917	24	45	3,958	146	4,104	57,446	30,306
W. Australia ...	1913	9	324	967	...	967	6,772	3,515
	1914	18	19	1,117	3,292	4,409	124,175	70,552
	1915	6	20	578	68	646	4,068	2,294
	1916	24	35	4,318	4,782	9,100	102,357	64,325
	1917	23	128	2,401	547	2,948	102,078	53,004
Tasmania ...	1913	8	30	444	20	464	987	434
	1914	6	22	288	25	313	3,286	1,459
	1915	2	9	922	...	922	4,808	2,174
	1916	6	36	366	68	434	21,389	11,207
	1917	8	11	1,062	623	1,685	52,541	24,502
Fed. Cap. Terr. ...	1913	1	1	100	100	200	1,400	600
	1914	1	1	50	...	50	350	170
	1915	1	1	20	...	20	80	55
	1916	...	...	...	...	...	...	...
	1917	...	...	...	...	...	...	...
Nth. Territory ...	1913	1	4	131	39	170	2,500	1,675
	1914	2	2	68	...	68	552	348
	1915	7	7	254	44	298	5,237	2,365
	1916	2	2	120	...	120	420	345
	1917	2	2	75	...	75	615	520
Commonwealth	1913	208	921	33,493	16,790	50,283	623,528	287,739
	1914	337	1,203	43,073	27,976	71,049	1,090,395	551,228
	1915	358	942	57,005	24,287	81,292	583,225	299,633
	1916	508	1,536	128,546	42,137	170,683	1,678,920	967,604
	1917	444	1,941	154,061	19,909	173,970	4,599,658	2,594,808

† These figures do not include establishments affected by the anti-conscription stop-work meetings, as definite particulars as to the number of establishments were not ascertainable.



It may be seen from the foregoing table that industrial disputes throughout the Commonwealth were most frequent during the year 1916. The number of workpeople involved in disputes during 1916 and 1917 increased to an enormous extent, while the losses in working days and wages were considerably in excess of such losses during any previous yearly period. It may be mentioned, however, that the figures for 1914 and 1916 include particulars of abnormal disputes which occurred in the coal mining industry during those years, while particulars relating to the "card system" dispute at the Government Railway Workshops in New South Wales are included in the figures for the year 1917.

The prevalence of industrial disputes in New South Wales, as compared with the other States, continued during the year 1917. The proportion of disputes in each State is best expressed in a percentage of the aggregate number recorded for all States and Territories. Thus the disputes in New South Wales represented 64 per cent. in 1913, 70 per cent. in 1914, 76 per cent. in 1915, 66 per cent. in 1916, and nearly 67 per cent. in 1917. The disputes in Victoria equalled 14, 13, 11, 11, and 12 per cent. of the total industrial disputes in the respective years, while Queensland disputes represented approximately 8, 5, 5, 13 and 9 per cent. of the total disputes during the same periods. In the other States and Territories the number of disputes recorded formed but a small proportion of the aggregate number.

The position which New South Wales occupies in comparison with the other States is practically wholly due to the prevalence of disputes in connection with coal mining. Apart from these stoppages the number of disputes in all other industries, whilst still in excess of that for each of the other States, does not compare unfavourably when the number of workpeople in each State is taken into consideration.

It is, of course, obvious that the mere number of disputes cannot by itself be accepted as a proper basis of comparison, nor does the number of workpeople involved afford a satisfactory basis. A better idea as to the significance and effect of industrial disputes may be obtained from the number of working days lost and the estimated loss in wages.

The number of working days lost on account of disputes which commenced during the year 1917, totalled 4,599,658, as compared with 1,678,930 during 1916, 583,225 during 1915, 1,090,395 during 1914, and 623,528 for 1913. It has already been mentioned that the figures for the years 1914, 1916 and 1917 include the heavy losses in working days and wages caused by exceptionally serious disputes which occurred during those years.

Particulars relating to the "card system" dispute at the Government Railway Workshops in New South Wales in August 1917 are included in the tabulations for the year 1917. The dispute, which commenced on the 2nd August, when the employees at the workshops ceased work, such action, according to statements of their representatives, being a protest against the introduction of a time-card system, rapidly extended to other industries throughout the Commonwealth. Railway employees in other branches of the service, coal and metalliferous miners, seamen, waterside workers and others left work, most of them stating that they did so in sympathy with the railway men, while other bodies of workers, including carters, storemen and artificial manure makers, stated that they refused to handle "black" goods and coal, and acted accordingly. The various disputes throughout the Commonwealth which followed on the action of the railway workshops' employees have been summarised and tabulated with a view to ascertaining the total number of workpeople involved and also the consequent losses in wages and working days.

After careful consideration of the data it was ascertained that 79 disputes throughout the various States were directly associated with the action of the employees at the railway workshops. Of these 79 disputes, 52 occurred in New South Wales; 18 in Victoria; 3 in South Australia; and 2 in each of the remaining States. The total number of workpeople involved in these dislocations was 97,507, the loss in working days was 3,982,250, with a consequent estimated loss in wages of £2,233,000. In New South Wales the loss of wages is estimated at £1,780,000; in Victoria, £325,500; in Queensland, £62,000; in South Australia, £7400; in Western Australia, £42,300; and in Tasmania, £15,800.

Of the total number of workpeople involved (97,507), 77,357, or 79 per cent., were resident in New South Wales; 14,200, or 15 per cent., in Victoria; 2350, or 2 per cent., in Queensland; and the remaining 3600, or 4 per cent., in the other States. In New South Wales the loss in working days was 3,071,000, or 77 per cent. of the total number (3,982,250); in Victoria, 637,300, or 16 per cent.; in Queensland, 123,600, or 3 per cent.; in West Australia, 84,100, or 2 per cent. The number of working days lost in South Australia and Tasmania was 14,100 and 32,150 respectively.

Owing to the action of the workpeople engaged in transport and coal-mining, the dispute became one of a far-reaching character, and practically all industries in New South Wales and Victoria were affected to a certain extent, the most serious cases being the railway and tramway services, coal and metalliferous mining, shipping and water-side working, general transport, engineering and metal working and the timber trade. The number of workpeople in railway and tramway services (including the railway workshops' employees, who initiated the strike) was 22,851, or 23 per cent. of the total number involved. Coal and metalliferous mining employees affected numbered 22,570, or 23 per cent.; seamen, wharf labourers, coal lumpers and others engaged in the shipping industry, 22,757, or 23 per cent.; while 22,009 persons engaged in various manufacturing industries, including engineers, metal workers, timber workers, artificial manure makers, rubber workers and rope and cordage makers, were involved. Carters, lorry drivers, and others engaged in the transport of goods to the number of 6050 were also directly affected by the dislocation.

In connection with the estimated loss of wages (£2,233,000) in various industries, workpeople in the mining section suffered to the greatest extent, no less than £781,250, or 35 per cent. of the total estimated loss, being recorded as the loss to employees engaged in coal and other mining. Other industries in which the workpeople lost large sums in wages were shipping and wharf labouring (£609,690, or 27 per cent.); railway and tramway services (£354,310, or 16 per cent.); general transport of goods (£124,000, or 6 per cent.); and manufacturing industries, including engineering and timber working (£244,690, or 11 per cent.).

The figures and particulars given in the preceding paragraphs concerning the "card system" dispute relate to losses in working days and wages incurred by workpeople *directly* involved in the dispute, and regarding which definite information was obtainable. In addition, however, there was considerable dislocation of employment in various industries, although the workpeople engaged in such industries were taking no direct action in connection with the dispute. It may be said that these industries and workpeople were *involuntarily* involved. This effect was very far-reaching, and various industries were stopped completely, or were compelled to reduce hands or working time. In the majority of cases the restriction placed upon the use of coal, gas, and electricity was the main cause of reducing employment; in others it was the lack of transport facilities, while in others, again, work was discontinued owing to the fact that the consumption or use of certain classes of manufactured goods was considerably curtailed, and employers discontinued manufacture owing to the lack of storage accommodation and the unsettled state of industry.

Special enquiries were instituted to ascertain the number of working days and amount of wages lost by persons who were *indirectly* or *involuntarily* affected by the dispute. The results of the enquiries, however, were unsatisfactory, as the particulars collected were so vague and qualified that it was not considered advisable to use the data for computing the losses in working days and wages by such workpeople.

The dislocation of work following on the "card system" dispute is the most extensive which has been recorded by the Bureau since the systematic collection of particulars was undertaken at the beginning of the year 1913. In 1914, a protracted dispute occurred in the coal mining industry in New South Wales over the refusal of the miners to work the afternoon shift. The number of working days lost owing to this dislocation was 523,000, and the estimated loss in wages was approximately £259,000. Another dispute of considerable magnitude was recorded in the year 1916, when coal mining employees in New South Wales, Victoria, Queensland, and Tasmania ceased work over

the question of "eight hours bank to bank." The total losses caused by the stoppages were 409,000 working days and £240,850 in wages. It will be seen, therefore, that the losses occasioned by the "card system" dispute greatly exceed any previously recorded.

In regard to extensive dislocations of industry which occurred prior to the institution of systematic enquiries by the Bureau, efforts have been made to obtain statistical data relating to the shearers' disputes in 1890, 1891 and 1894, and also concerning the number of workpeople involved and the losses caused by the maritime dispute in the early part of 1891, but precise information which could be utilised for statistical purposes regarding such particulars was not obtainable.

**3. Number and Magnitude of Industrial Disputes in the Commonwealth, Classified according to Industrial Groups.—Comparative Particulars for 1916 and 1917.**—The following table gives particulars of disputes in the Commonwealth during the years 1916 and 1917, classified according to industrial groups. The system of classification selected is similar to that adopted in connection with labour organisations, unemployment, rates of wage, etc. (see Report No. 8, Labour and Industrial Branch, page 8).

**INDUSTRIAL DISPUTES IN THE COMMONWEALTH, CLASSIFIED ACCORDING TO INDUSTRIAL GROUPS, 1916 AND 1917.**

Industrial Group.	No. of Disputes.		No. of Work-people involved in Disputes.		No. of Working Days Lost.		Total Estimated Loss in Wages.	
	1916.	1917.	1916.	1917.	1916.	1917.	1916.	1917.
I. Wood, Furniture, Timber, etc.	4	8	117	5,763	1,398	182,166	£ 805	£ 95,307
II. Engineering, Metal Wks., etc.	33	21	6,251	5,444	312,968	163,316	162,005	99,384
III. Food, Drink, etc. ....	26	30	5,125	6,930	55,416	92,970	26,951	50,844
IV. Clothing, Hats, Boots, etc. ....	4	...	194	...	1,156	...	391	...
V. Other Manufacturing ....	32	45	3,792	13,921	40,462	326,317	24,818	179,131
VII. Building ....	15	6	751	403	25,053	8,084	13,707	4,592
VIII. Mines, Quarries, etc. ....	240	200	95,512	69,519	920,105	1,317,016	570,278	937,326
IX. Rail and Tramway Services	40	30	5,067	29,985	70,865	834,703	33,934	411,339
X. Other Land Transport ....	5	3	214	6,068	2,563	264,918	1,241	124,009
XI. Shipping, Wharf Labour ....	40	44	4,085	24,922	29,851	1274,874	15,907	622,743
XII. Pastoral, Agricultural, etc. ....	16	27	3,062	3,020	75,063	91,512	40,814	48,472
XIII. Domestic, Hotel, etc. ....	1	2	36	140	720	648	200	144
XIV. Miscellaneous ....	52	28	46,474	7,855	143,310	42,734	76,553	21,517
<b>Commonwealth, All Groups</b>	<b>508</b>	<b>444</b>	<b>170,683</b>	<b>173,970</b>	<b>1678,930</b>	<b>4599,658</b>	<b>967,604</b>	<b>2594,808</b>

Comparison as to the frequency of industrial disputes in classified industries can only be reasonably made after omitting those which are recorded for mining, quarrying, etc. (Group VIII.). For the year 1914 the proportion of disputes in those industries represented practically 55 per cent. of the total number recorded. During the year 1915 this proportion rose to 57 per cent. In 1916 and also in 1917, however, the proportion of disputes in Group VIII. shewed a decrease, the figures representing 47 and 45 per cent. of the total number of disputes during the respective years. Attention has frequently been drawn to the preponderating influence contributed in this direction by the coal-mining industry in New South Wales. In making any comparison as to the number of disputes in this industrial class in each State, it should be observed that the number of workers engaged in the mining industry is very much larger in New South Wales than in any of the other States. The number of disputes recorded is, however, in excess of a similar proportion.

**4. Duration of Industrial Disputes in the Commonwealth, 1913-17.**—In the following table comparative particulars are given with respect to the number of disputes, workpeople directly and indirectly involved, working days lost, and estimated amount of loss in wages respectively, consequent on the cessations of work which were recorded for the Commonwealth during the years 1913, 1914, 1915, 1916, and 1917, classified under the adopted limits of duration :—

## DURATION OF INDUSTRIAL DISPUTES IN THE COMMONWEALTH, 1913-17.

Limits of Duration.	Year.	No. of Disputes.	No. of Workpeople Involved.			Number of Working Days Lost.	Total Estimated Loss in Wages.
			Directly.	Indirectly.	Total.		
1 day and less ...	1913	66	9,698	5,075	14,773	14,773	£ 8,168
	1914	118	15,295	10,192	25,487	25,438	13,744
	1915	147	21,846	11,326	33,172	31,559	19,452
	1916	155	55,680	10,711	66,391	65,757	35,293
	1917	158	28,705	6,758	35,463	35,065	26,733
2 days and more than 1 day ...	1913	22	2,631	1,945	4,576	9,022	4,449
	1914	53	6,309	3,352	9,661	18,382	8,986
	1915	44	6,671	2,246	8,917	17,794	9,464
	1916	57	11,607	5,923	17,530	31,775	17,672
	1917	47	7,093	2,383	9,476	18,917	12,253
3 days and more than 2 days ...	1913	17	1,294	610	1,904	5,707	2,946
	1914	29	2,983	1,987	4,970	14,910	7,500
	1915	30	3,526	1,513	5,039	14,944	7,672
	1916	45	8,050	5,220	13,270	39,419	23,612
	1917	29	4,363	433	4,796	14,340	9,442
Over 3 days and less than one week (6 days) ...	1913	25	3,785	1,004	4,789	19,057	8,940
	1914	38	2,252	2,117	4,369	19,728	9,449
	1915	31	5,032	3,153	8,185	36,469	21,176
	1916	81	13,460	5,918	19,378	86,817	50,484
	1917	39	4,749	1,578	6,327	27,132	16,868
1 week and less than 2 weeks ...	1913	34	7,551	1,972	9,523	72,156	32,700
	1914	38	5,222	1,206	6,428	53,108	27,868
	1915	48	11,372	4,184	15,556	127,477	41,875
	1916	64	8,081	5,493	13,574	108,978	60,933
	1917	58	9,003	1,669	10,672	79,857	47,336
2 week and less than 4 weeks ...	1913	21	1,439	4,671	6,110	76,260	41,040
	1914	30	6,382	4,491	10,873	181,896	91,419
	1915	21	4,101	624	4,725	64,959	47,404
	1916	41	8,565	3,960	12,525	202,657	117,211
	1917	38	10,190	2,654	12,844	210,184	118,362
4 weeks and less than 8 weeks ...	1913	11	6,206	1,177	7,383	273,342	121,864
	1914	17	823	719	1,542	52,674	26,717
	1915	22	2,723	681	3,404	95,836	51,761
	1916	32	19,348	3,207	22,555	644,960	402,471
	1917	49	45,338	1,823	47,161	1,615,954	821,402
8 weeks and over ...	1913	12	889	336	1,225	153,211	67,632
	1914	14	3,807	3,912	7,719	724,259	365,545
	1915	15	1,734	560	2,294	194,187	100,829
	1916	33	3,755	1,705	5,460	498,567	259,928
	1917	26	44,620	2,611	47,231	2,598,209	1,542,412
Total ...	1913	208	33,493	16,790	50,283	623,528	287,739
	1914	337	43,073	27,976	71,049	1,090,395	551,228
	1915	358	57,005	24,287	81,292	583,225	299,633
	1916	508	128,546	42,137	170,683	1,678,930	967,604
	1917	444	154,061	19,909	173,970	4,599,658	2,594,808

It will be seen from the above table that disputes lasting for one day or less were the most frequent during each of the years for which figures are furnished. In the year 1917, stoppages of one day or less represented nearly 36 per cent. of the total number, while 61 per cent. of the stoppages during the year were terminated in less than one week. The disputes which continued for four weeks or over represented 17 per cent.

of the total number of dislocations recorded, were responsible for 92 per cent. of the total number of working days lost, and were the cause of 91 per cent. of the estimated loss in wages during the year.

5. **Industrial Disputes, Classified as to Causes and Results.**—The following table shews the number of disputes, number of workpeople involved, and the total number of working days lost in disputes which commenced in a State or Territory of the Commonwealth during the years 1916 and 1917, classified according to principal cause and result:—

### INDUSTRIAL DISPUTES, CLASSIFIED ACCORDING TO CAUSES AND RESULTS.

PARTICULARS.	No. of Disputes.				No. of Workpeople involved in Disputes.				Total No. of Working Days Lost by Disputes.			
	In Favour of Workpeople.	In Favour of Employer.	Compromise.	Indefinite.	In Favour of Workpeople.	In Favour of Employer.	Compromise.	Indefinite.	In Favour of Workpeople.	In Favour of Employer.	Compromise.	Indefinite.
1916.												
<b>Wages—</b>												
(a) For increase...	60	40	24	1	21,083	2,752	6,208	150	301,355	46,904	243,916	450
(b) Against decrease ...	3	2	2	...	330	314	407	...	825	3,444	1,923	...
(c) Other wage questions ...	50	28	16	2	13,024	6,307	3,492	684	68,855	17,899	54,310	2,184
<b>Hours of Labour—</b>												
(a) For reduction	8	7	1	...	14,288	5,379	4,814	...	379,587	63,859	139,606	...
(b) Other disputes re hours ...	2	2	1	...	60	242	277	...	182	308	1,108	...
<b>Trade Unionism—</b>												
(a) Against employment of non-unionists	11	2	1	...	805	330	43	...	12,398	34,290	2,193	...
(b) Other union questions ...	3	1	3	1	246	24	893	4	511	120	8,505	1,140
<b>Employment of particular classes or persons</b>	47	28	8	...	12,002	3,421	487	...	55,054	13,323	2,075	...
<b>Working Conditions</b>	29	39	21	1	5,769	9,551	5,186	10	30,917	35,057	15,477	60
<b>Sympathy</b>	2	9	1	8	1,580	1,748	240	623	33,980	27,234	2,880	11,353
<b>Other Causes</b>	8	20	6	10	1,401	6,602	1,249	38,658	2,346	10,646	4,309	48,347
<b>TOTAL</b>	223	178	84	23	70,588	36,670	23,296	40,129	886,010	253,084	476,302	63,534
1917.												
<b>Wages—</b>												
(a) For increase	24	20	9	...	3,482	2,668	985	...	15,727	33,428	6,928	...
(b) Against decrease ...	1	...	...	...	21	...	...	...	42	...	...	...
(c) Other wage questions ...	20	26	23	...	2,947	6,149	9,798	...	7,351	46,354	171,375	...
<b>Hours of Labour—</b>												
(a) For reduction	...	1	1	...	...	1,000	4	...	...	78,000	16	...
(b) Other disputes re hours ...	1	4	3	...	750	968	858	...	6,000	977	55,583	...
<b>Trade Unionism—</b>												
(a) Against employment of non-unionists	14	6	6	...	3,540	1,781	861	...	43,070	37,790	6,740	...
(b) Other union questions ...	5	23	4	...	1,232	15,943	145	...	3,390	568,234	1,325	...
<b>Employment of particular classes or persons</b>	41	25	23	1	6,027	5,307	3,649	462	13,322	15,871	16,718	1,386
<b>Working conditions</b>	32	23	24	2	5,546	9,082	3,959	434	10,377	193,150	8,010	434
<b>Sympathy</b>	1	53	2	1	40	75,606	400	30	160	3224,778	14,800	60
<b>Other causes</b>	8	7	5	5	746	1,085	1,651	6,814	3,828	3,399	3,608	7,427
<b>TOTAL</b>	147	188	100	9	24,331	119,569	22,310	7,740	103,267	4,201,981	285,103	9,307

NOTE.—For corresponding particulars for 1913 see Labour Report No. 5, pp. 78-9; and for 1914 and 1915, see Labour Report No. 6, p. 119.

In the above table it will be seen that 147 of the 444 disputes, recorded during the year 1917, were classified as terminating in favour of the workpeople involved; 188 in favour of the employers; while 100 resulted in a compromise. In New South Wales, Victoria and South Australia the results were in favour of the employers, while in the remaining States and the Northern Territory the results favoured the employees. The effect of the unsuccessful dispute over the introduction of the "Card System" into the Government Railway Workshops in New South Wales is noticeable when the figures shewing the number of workpeople involved in disputes which resulted in favour of the employers is scrutinised. No less than 119,589 workpeople, or 69 per cent. of the total number, were involved in unsuccessful disputes during the year. The greater part of these employees were implicated in disputes which arose out of the trouble at the railway workshops.

## § 7.—Retail Prices, House Rents, and Cost of Living.

1. **Introduction.**—In Report No. 1, issued in December, 1912, the results of certain investigations into the subjects of Prices, Price-Indexes and Cost of Living in past years were published, and some account was given of the methods employed for the collection of the data and of the technique adopted in the computation of the results. An important discussion of the theory upon which the calculation of the index-numbers is based was given, but being necessarily too technical for the ordinary reader, was relegated to Appendixes. In Reports Nos. 2, 5, 6, 7 and 8, results of further investigations were given, and in those Reports, and in Labour Bulletins Nos. 1 to 18, information was given as to variations in retail and wholesale prices, house-rent, and purchasing-power of money up to the end of 1917.

It must here suffice to state that the method adopted for the computation of the index-numbers is what may very properly be called the "aggregate expenditure" method. The first process is, of course, to work out the average price of each commodity included, and numbers (called "mass-units") representing the *relative* extent to which each commodity was on the average used or consumed are then computed. The price in any year of each commodity multiplied by its corresponding "mass-unit" represents, therefore, the relative total expenditure on that commodity in that year *on the basis of the adopted regimen*. It follows, therefore, that by taking for any year the sum of the price of each commodity multiplied by its corresponding "mass-unit," a figure is obtained which represents the relative aggregate or total expenditure of the community in that year on all the commodities, etc., included. By computing these aggregate expenditures for a series of years and taking the expenditure in any desired year as "base," that is, making the expenditure in that year equal to 1000 units, the relative expenditure in any other year, that is to say, the "index-numbers," are readily ascertained. A numerical example of the technique and methods adopted for the computation of index-numbers was given in Report No. 2 (pp. 44 and 45).

2. **Scope of Investigation.**—It was pointed out in Report No. 1, that, in any investigation into the question of change in cost of living of a community, a careful distinction must be drawn between two things, viz:—

- (a) Variations in the *purchasing-power* of money, and
- (b) Variations in the *standard of living*.

In Report No. 2, attention was drawn to the fact that the second element (b) *can* be limited, at any rate to some extent, by the exercise of self denial and thrift, and that such

limitation is at the disposal of each individual; the former (a) is not subject to this possibility. Thus, from this aspect, social economics are concerned *primarily* with an accurate estimation of variations in the purchasing-power of money and only secondarily with the question of the general standard of living which has been reached. The first desideratum demands the selection of a suitable list of commodities, the quantities of each being taken in due proportion to their relative average consumption. The quantities in this list being kept constant, the cost of the whole group must then be ascertained. In this way a comparison may be made of the cost in different areas or districts at the same time, as well as the variation in any one place from time to time. This is the "aggregate expenditure" method explained above.

As explained in Report No. 1, special steps were taken to conduct the investigation back as far as 1901 for the capital towns only. The collection of current monthly returns as to prices and of quarterly returns of house rents commenced in thirty of the more important towns of the Commonwealth in January, 1912.

**3. Commodities and Requirements Included.**—The 47 items of expenditure included are divided into four groups, viz.:—(i.) groceries and bread, (ii.) dairy produce, (iii.) meat, and (iv.) house rent. These items cover about 60 per cent. of the total expenditure of a normal family. There are very cogent reasons for the restriction of the enquiries to the items mentioned. If the comparisons made are to be satisfactory, no confusion must arise between changes in the standard of living and changes arising from a variation of the purchasing-power of money. In order to avoid such confusion the items selected are such as are sensibly identical and identifiable in the various localities. The most important group of expenditure which is not included is clothing, the cost of which amounts to about 13 per cent. of the total expenditure. Owing to influences of individual taste, fashion, and the enormous variety of production, articles included in this group are practically not comparable and identifiable. As regards fuel and light, the cost of which amounts to about 4 per cent. of the total expenditure, while these commodities are comparable and identifiable, the usage or relative consumption in the towns included in the inquiries varies to such an extent that their inclusion on an assumed constant regimen would tend to produce a fictitious result in so far as variations in the purchasing-power of money are concerned.

In Report No. 8 (page 24), a tabular statement was given furnishing particulars of the commodities and items included, the units of measurement for which prices are collected, and the mass-units shewing the relative extent to which each item is used or consumed.

**4. Variations in the Purchasing-Power of Money in each Metropolitan Town, 1901 to 1917.**—In Reports Nos. 1, 2, 5, 6, 7, and 8, and Labour Bulletins Nos. 1 to 18, index-numbers were given for each of the four groups, and for all groups combined, for each capital town since 1901, the expenditure in 1911 being taken in each case as base (=1000). In this section only summarised results are given. Firstly, for food and groceries; secondly, for house rent; and thirdly, for all groups combined—the weighted average expenditure for all capital towns in 1911 being taken in each case as base (=1000). The index-numbers in each table are fully comparable with each other, that is to say, they shew not only the variations from year to year in each capital town, but also the relative cost as between the towns.

(i.) *Food and Groceries.* The index-numbers thus computed for the three groups comprising groceries and food are shewn in the following table:—

**RETAIL PRICES IN METROPOLITAN TOWNS, INDEX-NUMBERS FOR GROCERIES  
AND FOOD (GROUPS I., II., and III.), 1901 and 1907 to 1917.**

Town.	1901.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.
Sydney ...	917	936	1,030	1,012	1,000	989	1,124	1,131	1,156	1,396	1,520	1,540
Melbourne ...	965	925	995	949	960	935	1,082	1,024	1,091	1,411	1,462	1,412
Brisbane ...	965	947	1,023	983	1,000	1,018	1,102	1,042	1,078	1,373	1,426	1,406
Adelaide ...	1,028	951	1,010	1,025	1,001	1,020	1,154	1,119	1,215	1,487	1,532	1,445
Perth ...	1,184	1,197	1,226	1,212	1,251	1,346	1,345	1,267	1,302	1,483	1,542	1,505
Hobart ...	1,011	1,010	1,055	1,093	1,073	1,058	1,190	1,164	1,212	1,445	1,523	1,544
Weighted Average*	972	955	1,031	1,006	1,005	1,000	1,129	1,095	1,144	1,416	1,495	1,472

\* For all capital towns.

The above figures are directly comparable in every respect; thus it will be seen that the same quantity of food and groceries, which cost £1000 in the capital towns considered as a whole in 1911, would have cost £917 in Sydney in 1901, £1346 in Perth in 1911, or £1412 in Melbourne in 1917.

(ii.) *House Rent.*—In the following table, index-numbers are given computed for the weighted average house rent in each of the capital towns from 1901 to 1917, taking the average rent for the six capital towns in 1911 as the base (= 1000). The average rent has been obtained for each town separately by multiplying the average predominant rent for each class of house (i.e., houses having less than 4 rooms, 4 rooms, 5 rooms, 6 rooms, 7 rooms, and over 7 rooms) by a number ("weight") representing the relative number of houses of that class in the particular town. The sum of the products thus obtained, divided by the sum of the weights, gives the weighted average for all houses. The number of houses in each class for each town was obtained from the results of the 1911 census. It should be observed, therefore, that these index-numbers are based on the weighted average rents for all houses, and that they do not refer to any particular class of houses. The actual predominant rents for each class were given in appendixes to Reports Nos. 1, 2, 5, 6, 7 and 8, and an examination of these figures shews that for some classes of houses the increase has been greater, and in some less, than the general increase indicated in the following table:—

**HOUSE RENTS IN METROPOLITAN TOWNS.—INDEX-NUMBERS SHEWING WEIGHTED  
AVERAGE RENTS (GROUP IV.), 1901 and 1907 to 1917.**

Town.	1901.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.
Sydney ...	858	911	922	955	988	1,090	1,183	1,246	1,279	1,220	1,212	1,215
Melbourne ...	733	804	828	842	916	970	1,016	1,089	1,126	1,085	1,089	1,124
Brisbane ...	488	575	616	662	700	767	804	863	882	859	847	859
Adelaide ...	629	812	872	940	1,018	1,112	1,160	1,125	1,040	932	930	959
Perth ...	801	684	678	667	696	810	880	928	914	848	869	874
Hobart ...	667	708	727	749	776	805	829	887	914	928	928	951
Weighted Average*	751	816	839	867	919	1,000	1,063	1,118	1,135	1,081	1,081	1,098

\* For all capital towns.

NOTE.—The above figures are directly comparable in every respect.

It may be seen that there was a uniform increase in each metropolitan town from 1901 to 1914. The increase was greater in Adelaide and Brisbane than in the other



towns. It should be observed, however, that at the commencement of the period, rents were exceptionally low in Brisbane, and were comparatively low in Adelaide (see Appendix IV. to Report No. 1). The index-numbers for Perth present features entirely different from those for the other towns. During 1915, there was a decrease in house rents in all the capital towns except Hobart, and in 1916 rents increased slightly in Melbourne and Perth, and decreased slightly in Sydney, Brisbane, and Adelaide. The index-number for Hobart was the same in 1916 as in 1915. The index-numbers for 1917 shew that there was an increase in all capital cities during that year.

(iii.) *Food, Groceries, and House Rent combined.* The weighted averages for all four groups are of importance, as indicating the general results of this investigation so far as the purchasing-power of money is concerned. The following table shews the index-numbers for groceries, food, and house rent for each metropolitan town, the weighted average cost for the six capital towns in 1911 being taken as base (= 1000):—

**PURCHASING-POWER OF MONEY IN METROPOLITAN TOWNS.—INDEX-NUMBERS SHEWING WEIGHTED AVERAGE RESULTS FOR ALL GROUPS (GROCERIES, DAIRY PRODUCE, MEAT, AND HOUSE RENT), 1901 and 1907 to 1917.**

TOWN.	1901.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.
Sydney ...	893	926	986	989	995	1,031	1,148	1,178	1,206	1,323	1,394	1,406
Melbourne ...	870	875	926	905	942	950	1,055	1,051	1,105	1,277	1,309	1,294
Brisbane ...	769	794	856	851	877	915	979	969	997	1,162	1,188	1,181
Adelaide ...	864	894	953	930	1,008	1,053	1,157	1,121	1,143	1,259	1,285	1,245
Perth ...	1,027	986	1,001	988	1,023	1,126	1,154	1,128	1,143	1,222	1,266	1,246
Hobart ...	869	886	920	932	951	954	1,042	1,050	1,090	1,233	1,278	1,301
Weighted Average*	880	897	951	948	970	1,000	1,101	1,104	1,140	1,278	1,324	1,318

\* For all capital towns.

NOTE.—The above figures are directly comparable in every respect.

The index-number for 1914 was 3.3 per cent. higher than for 1913. There was a further increase in 1915 in each of the towns, the weighted average index-number shewing an increase of 12.1 per cent. compared with 1914. There was a further increase in each of the towns in 1916, the weighted average index-number for 1916 shewing an increase of 3.6 per cent. compared with the year 1915. The index-number for 1917 shews a decrease of 0.5 per cent. compared with the immediately preceding year. Index-numbers for the years 1901 to 1906 inclusive, omitted from the three preceding tables are given in Labour Report No. 5, page 23.

**5. Relative Cost of Food, Groceries, and House Rent in Different Towns, 1917.—**

The index-numbers given in the preceding paragraphs shew *changes in the cost of food, groceries, and house rent separately for each capital town during the years 1901 to 1917.* The figures given in the table on the next page shew *the relative cost of food, groceries, and house rent in 1917 in the thirty towns for which particulars are now being collected.* The weighted aggregate expenditure for the six capital towns for the year 1911 has been taken as base and made equal to 1000, hence the columns are comparable both horizontally and vertically.

**INDEX-NUMBERS, SHEWING RELATIVE COST IN EACH OF THIRTY TOWNS, OF FOOD AND GROCERIES AND HOUSE RENT COMPARED WITH WEIGHTED AVERAGE EXPENDITURE ON GROCERIES, FOOD, AND RENT IN THE SIX CAPITAL TOWNS IN 1911 AS BASE (= 1000), 1917.**

Town.	Groceries and Food.	HOUSE RENT.				FOOD, GROCERIES, AND RENT, INCLUDING HOUSES HAVING—			
		4-r'm'd Houses only.	5-r'm'd Houses only.	6-r'm'd Houses only.	All Houses. Weightd Average.	4 Rooms.	5 Rooms.	6 Rooms.	All Houses. Weightd Average.
<b>N. S. WALES—</b>									
Sydney ...	907	389	470	550	500	1,296	1,377	1,457	1,407
Newcastle ...	906	240	326	404	316	1,146	1,232	1,310	1,222
Broken Hill* ...	1,047	242	322	391	268	1,289	1,369	1,438	1,315
Goulburn ...	878	306	402	545	460	1,184	1,280	1,423	1,338
Bathurst ...	874	215	289	377	319	1,089	1,163	1,251	1,193
Weighted Average	912	367	449	529	471	1,279	1,361	1,441	1,383
<b>VICTORIA—</b>									
Melbourne ...	832	330	421	518	462	1,162	1,253	1,350	1,294
Ballarat ...	825	143	217	290	258	968	1,042	1,115	1,083
Bendigo ...	829	172	230	329	264	1,001	1,059	1,158	1,093
Geelong ...	836	226	331	449	385	1,062	1,167	1,285	1,221
Warrnambool ...	842	236	311	369	326	1,078	1,153	1,211	1,168
Weighted Average	832	301	388	485	430	1,132	1,220	1,317	1,262
<b>QUEENSLAND—</b>									
Brisbane ...	828	225	293	394	353	1,053	1,121	1,222	1,181
Toowoomba ...	819	180	241	292	297	999	1,050	1,101	1,116
Rockhampton ...	840	204	260	343	323	1,044	1,100	1,183	1,163
Charters Towers ...	927	207	267	335	260	1,134	1,194	1,262	1,197
Warwick ...	832	156	229	325	292	988	1,061	1,157	1,124
Weighted Average	837	215	280	370	335	1,052	1,117	1,207	1,172
<b>S. AUSTRALIA—</b>									
Adelaide ...	851	291	385	486	394	1,142	1,236	1,337	1,245
Moonta, etc. ...	904	194	291	372	289	1,036	1,195	1,276	1,193
Port Pirie* ...	930	299	361	408	339	1,229	1,291	1,393	1,269
Mt. Gambier ...	938	216	263	356	294	1,054	1,101	1,194	1,132
Petersburg ...	914	237	316	369	312	1,151	1,230	1,263	1,226
Weighted Average	858	283	374	471	381	1,141	1,232	1,329	1,239
<b>W. AUSTRALIA—</b>									
Perth ...	887	302	374	459	359	1,189	1,261	1,346	1,246
Kalgoorlie, etc. ...	1,054	358	443	526	344	1,412	1,497	1,580	1,398
Mid. Junct., etc. ...	695	232	307	366	291	1,127	1,202	1,261	1,186
Bunbury ...	973	217	271	330	220	1,190	1,244	1,303	1,193
Geraldton ...	958	357	450	549	391	1,315	1,408	1,507	1,349
Weighted Average	926	310	385	467	349	1,236	1,311	1,393	1,275
<b>TASMANIA—</b>									
Hobart ...	910	307	374	452	391	1,217	1,284	1,362	1,301
Launceston ...	890	256	354	422	368	1,146	1,244	1,312	1,258
Zeehan ...	965	125	161	197	118	1,090	1,126	1,162	1,083
Beaconsfield ...	951	66	84	108	83	1,017	1,035	1,059	1,034
Queenstown ...	970	278	323	376	258	1,248	1,293	1,346	1,228
Weighted Average	912	271	342	412	349	1,183	1,254	1,324	1,261
<b>Commonwealth</b>									
Weighted Average ...	873	313	395	483	421	1,186	1,268	1,356	1,294

\* See remarks on page 41 of Labour Report No. 8, with reference to House Rents.

6. Variation in Purchasing-Power of Money, 1901 to 1917.—The tables in paragraph 4 give the relative cost of food, groceries, and house rent in the six capital towns from 1901 to 1917 in the form of index-numbers. In the following tables similar information is given as regards variations in cost of food, groceries, and house rent, the base being taken as 20s. for the weighted average in the six capital towns in 1911. The figures therefore shew the sums which would have to be paid in each town and in each year in order to purchase such relative quantities (indicated by the mass-units) of the several commodities, and to pay such sums for house-rent as would in the aggregate cost £1, according to the weighted average prices and rents in the six capital towns in 1911.

**PURCHASING-POWER OF MONEY (FOOD, GROCERIES, AND HOUSE RENT).—AMOUNT NECESSARY ON THE AVERAGE IN EACH YEAR FROM 1901 TO 1917 TO PURCHASE IN EACH CAPITAL TOWN WHAT WOULD HAVE COST ON THE AVERAGE £1 IN 1911 IN THE AUSTRALIAN CAPITALS REGARDED AS A WHOLE.**

Year.	Sydney.	Melb'ne.	Brisbane.	Adelaide.	Perth.	Hobart.	Weighted Average of 6 Capital Towns
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
1901 ...	17 10	17 5	15 5	17 3	20 6	17 5	17 7
1902 ...	19 7	18 1	16 0	17 3	21 7	17 10	18 7
1903 ...	19 2	17 7	15 9	16 9	21 8	17 11	18 2
1904 ...	17 5	17 1	14 8	16 3	20 10	17 1	17 2
1905 ...	18 9	17 7	15 5	17 6	20 11	17 9	18 0
1906 ...	18 8	17 7	15 7	17 10	20 5	18 0	18 0
1907 ...	18 6	17 6	15 11	17 11	19 9	17 9	17 11
1908 ...	19 9	18 6	17 1	19 1	20 0	18 5	19 0
1909 ...	19 9	18 1	17 0	19 10	19 9	19 0	19 0
1910 ...	19 11	18 10	17 6	20 2	20 6	19 0	19 5
1911 ...	20 7	19 0	18 4	21 2	22 6	19 1	20 0*
1912 ...	22 11	21 1	19 7	23 2	23 1	20 10	22 0
1913 ...	23 7	21 0	19 5	22 5	22 6	21 1	22 1
1914 ...	24 1	22 1	19 11	22 10	22 10	21 10	22 10
1915 ...	26 6	25 6	23 3	25 2	24 5	24 8	25 7
1916 ...	27 10	26 2	23 9	25 8	25 4	25 7	26 6
1917 ...	28 1	25 11	23 7	24 11	24 11	26 0	26 4
1917 { 1st Quarter	27 7	25 7	22 11	25 3	24 10	25 4	26 0
1917 { 2nd "	27 9	25 9	23 3	25 2	25 6	25 3	26 2
1917 { 3rd "	28 8	26 0	23 9	24 5	24 8	25 11	26 7
1917 { 4th "	28 6	26 2	24 6	24 10	24 8	27 6	26 8

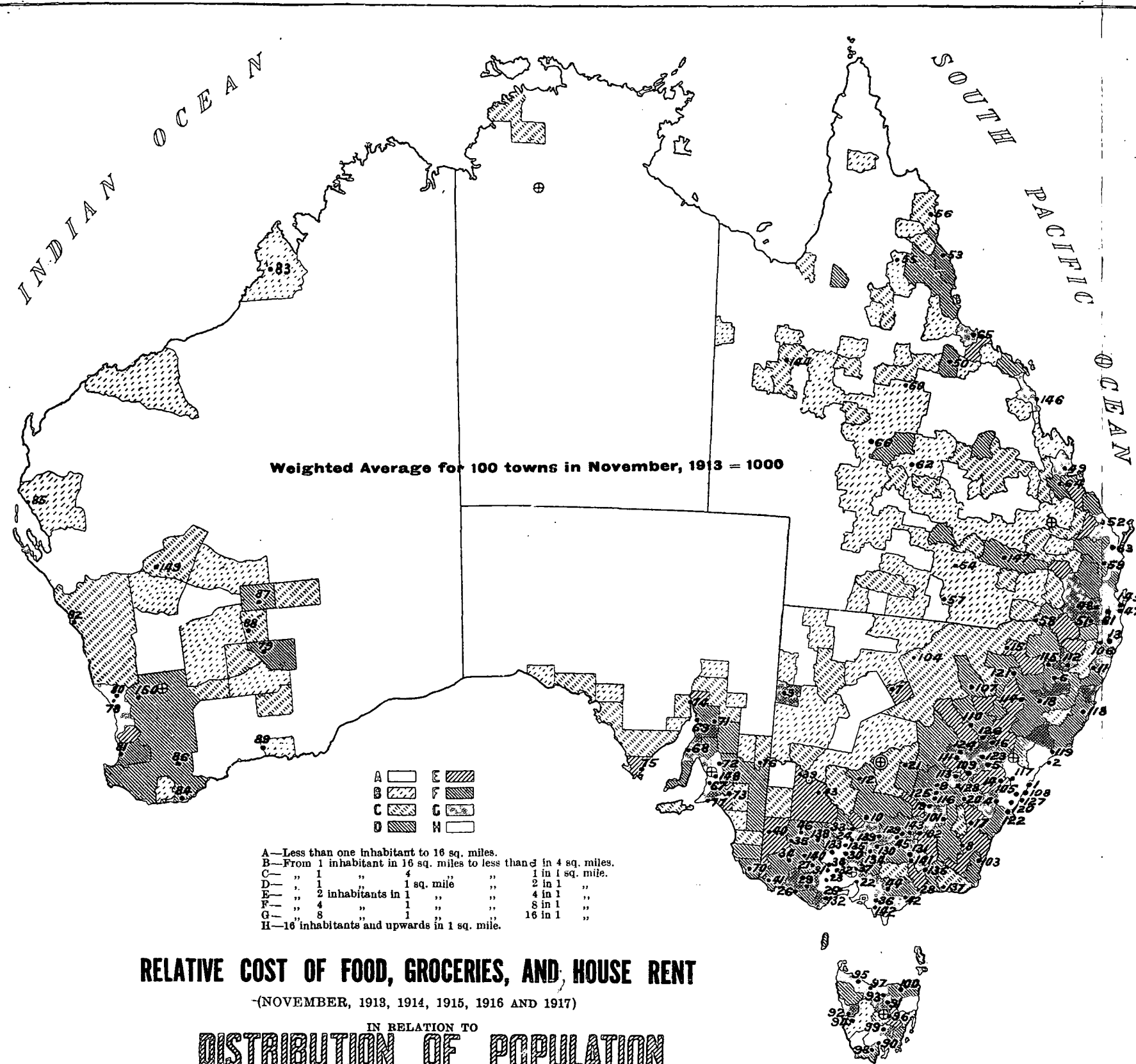
\* Basis of Table.

(i.) *Groceries and Food only.* The following table has been computed in the same manner as that indicated above, but relates to *groceries and food* (46 items) *only*. The average expenditure for the six capital towns in 1911 has again been taken as the basis of the table (= 20 shillings) and the figures are, of course, comparable throughout.

**PURCHASING-POWER OF MONEY.—GROCERIES AND FOOD ONLY.—AMOUNT NECESSARY ON THE AVERAGE IN EACH YEAR FROM 1901 TO 1917 TO PURCHASE IN EACH CAPITAL TOWN WHAT WOULD HAVE COST ON THE AVERAGE £1 IN 1911 IN THE AUSTRALIAN CAPITALS REGARDED AS A WHOLE.**

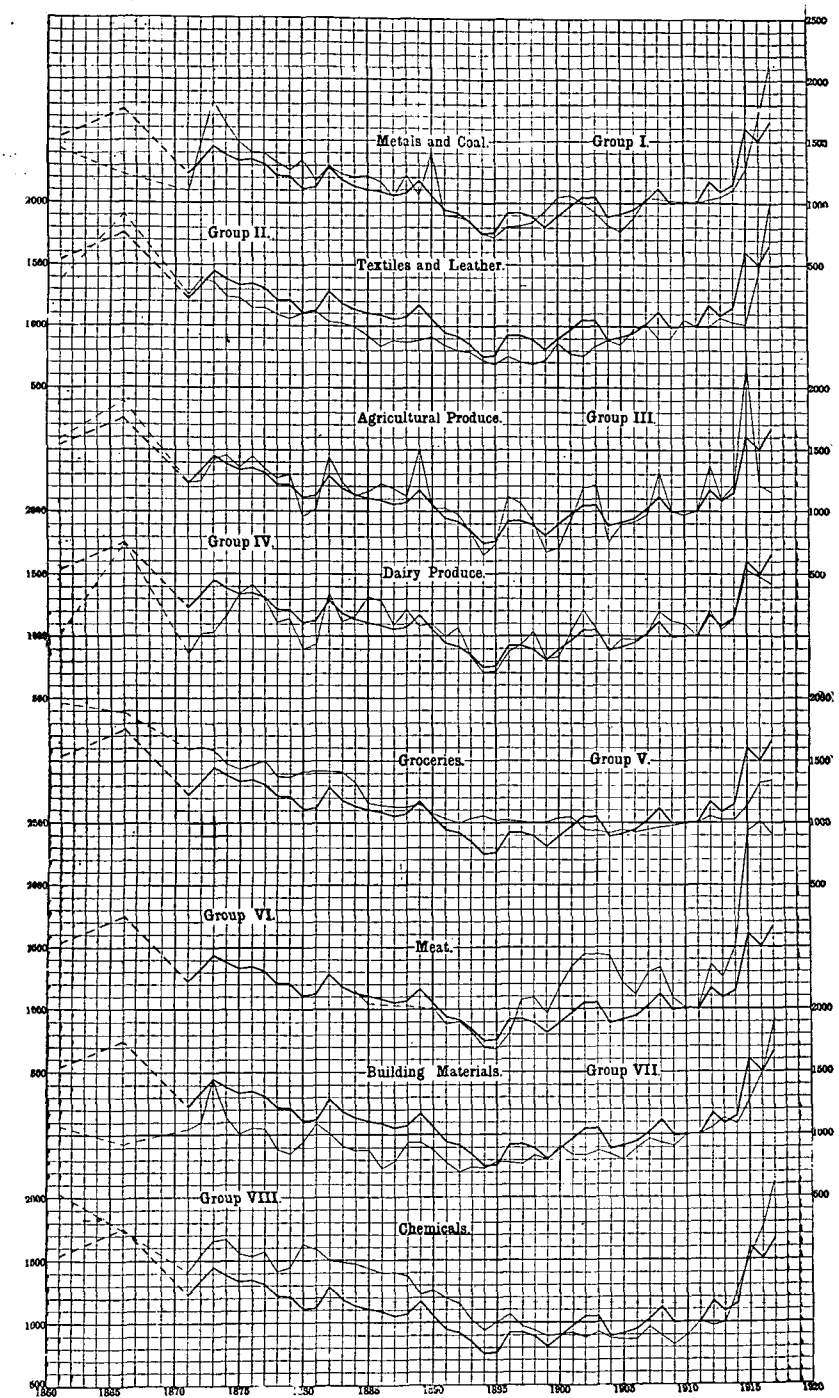
Year.	Sydney.	Melb'ne.	Brisbane.	Adelaide.	Perth.	Hobart.	Weighted Average of 6 Capital Towns.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
1901 ...	18 4	19 4	19 4	20 7	23 8	20 3	19 4
1902 ...	21 4	20 4	20 4	20 6	25 6	21 0	21 1
1903 ...	20 7	19 6	19 9	19 8	25 8	21 1	20 4
1904 ...	17 6	18 4	17 10	18 10	24 3	19 8	18 5
1905 ...	19 5	19 1	18 11	19 10	25 2	20 7	19 8
1906 ...	19 3	18 11	19 2	19 8	24 9	20 11	19 7
1907 ...	18 9	18 6	18 11	19 0	23 11	20 2	19 1
1908 ...	20 7	19 11	20 6	20 2	24 6	21 1	20 7
1909 ...	20 3	19 0	19 8	20 6	24 3	21 10	20 1
1910 ...	20 0	19 2	20 0	20 0	25 0	21 6	20 1
1911 ...	19 9	18 8	20 4	20 5	26 11	21 2	20 0*
1912 ...	22 6	21 8	22 0	23 1	26 11	23 10	22 1
1913 ...	22 8	20 6	20 10	22 5	25 4	23 3	21 11
1914 ...	23 1	21 10	21 7	24 4	26 0	24 3	22 11
1915 ...	27 11	28 3	27 6	29 9	29 8	28 11	28 4
1916 ...	30 5	29 3	28 6	30 8	30 10	30 5	29 11
1917 ...	30 10	28 3	28 2	28 11	30 1	30 11	29 5
1917 { 1st Quarter	30 0	27 11	27 0	29 6	30 0	29 10	28 11
1917 { 2nd "	30 1	28 3	27 6	29 4	31 1	29 8	29 3
1917 { 3rd "	31 9	28 5	28 5	28 1	29 8	30 8	29 9
1917 { 4th "	31 4	28 5	29 7	28 8	29 7	33 5	29 10

\* Basis of Table.



## Reference to Numbers on Map.

	1913.		1914.		1915.		1916.		1917.			1915.		1916.		1917.	
	A	B	A	B	A	B	A	B	A	B		A	B	A	B	A	B
1 SYDNEY	1,109	634	1,124	651	1,321	861	1,305	851	1,352	895	N. S. Wales—						
2 Newcastle	960	637	972	648	1,228	847	1,173	856	1,229	888	101 Adelung ..	1,110	922	1,018	837	996	855
3 Broken Hill	1,116	768	849	773	1,192	1,013	1,341	1,042	1,319	1,002	102 Albury ..	1,174	868	1,169	847	1,225	874
4 Goulburn	974	629	1,035	667	1,271	854	1,247	864	1,237	853	103 Bega ..	1,137	873	1,100	864	1,163	892
5 Bathurst	892	583	909	608	1,102	825	1,109	832	1,111	858	104 Bourke ..	1,146	920	1,198	914	1,282	931
6 Armidale	875	601	948	618	1,148	863	1,150	834	1,237	886	105 Bowral ..	1,135	841	1,152	859	1,252	869
7 Cobar	987	661	881	742	996	907	1,159	909	1,187	928	106 Casino ..	1,165	884	1,102	822	1,192	930
8 Cooma	861	638	975	662	1,221	962	1,131	884	1,154	881	107 Coonamble ..	1,202	883	1,263	944	1,224	937
9 Cootamundra	977	632	990	653	1,290	992	1,228	864	1,227	876	108 Corral ..	1,078	864	1,118	901	1,139	915
10 Deniliquin	836	606	943	675	1,199	924	1,148	874	1,173	894	109 Gowra ..	1,217	854	1,228	872	1,234	870
11 Grafton	919	632	922	654	1,181	913	1,164	830	1,255	936	110 Dubbo ..	1,190	887	1,188	853	1,223	872
12 Hay	918	688	989	740	1,277	1,006	1,235	948	1,227	938	111 Forbes ..	1,131	886	1,083	834	1,136	871
13 Lismore	931	695	1,042	723	1,213	860	1,183	842	1,289	949	112 Glen Innes ..	1,101	859	1,114	837	1,184	878
14 Lithgow	915	628	938	625	1,227	894	1,212	884	1,229	906	113 Grenfell ..	1,221	902	1,181	910	1,258	917
15 Moree	981	681	1,041	696	1,256	937	1,225	906	1,375	928	114 Gunnedah ..	1,252	870	1,244	868	1,258	875
16 Mudgee	824	569	895	640	1,131	863	1,162	878	1,165	878	115 Inverell ..	1,201	841	1,213	857	1,271	909
17 Queanbeyan	1,052	650	980	635	1,213	906	1,169	873	1,204	928	116 Junee ..	1,223	885	1,268	900	1,251	873
18 Tamworth	902	599	1,068	649	1,231	874	1,308	876	1,255	901	117 Katoomba ..	1,325	847	1,345	907	1,371	928
19 Wagga Wagga	967	584	949	670	1,172	834	1,207	818	1,262	841	118 Kempsey ..	1,120	862	1,099	860	1,149	892
20 Yass	943	637	1,040	676	1,251	948	1,201	899	1,244	927	119 Maitland ..	1,087	822	1,148	830	1,178	868
21 West Wyalong	966	631	952	669	1,130	890	1,177	906	1,229	910	120 Moss Vale ..	1,258	869	1,222	872	1,360	885
22 MELBOURNE	964	568	1,019	628	1,240	852	1,207	807	1,229	814	121 Narrabri ..	1,190	877	1,221	870	1,297	927
23 Ballarat	787	566	845	636	1,084	874	1,012	815	1,016	806	122 Nowra ..	1,080	856	1,100	845	1,205	886
24 Bendigo	815	573	873	641	1,068	843	1,030	814	1,047	797	123 Orange ..	1,210	834	1,155	846	1,202	850
25 Geelong	872	579	943	639	1,145	849	1,125	809	1,113	813	124 Parkes ..	1,153	879	1,215	921	1,236	940
26 Warrnambool	865	581	914	620	1,152	868	1,100	804	1,117	816	125 Temora ..	1,262	911	1,210	868	1,247	906
27 Ararat	833	577	915	641	1,179	895	1,119	852	1,126	849	126 Wellington ..	1,197	859	1,193	902	1,244	887
28 Bairnsdale	798	579	838	615	1,155	903	1,053	811	1,079	833	127 Wollongong ..	1,141	838	1,194	831	1,226	904
29 Camperdown	866	572	915	625	1,101	818	1,079	800	1,091	808	128 Young ..	1,180	874	1,168	885	1,217	868
30 Castlemaine	773	547	911	636	1,137	862	1,089	831	1,079	822	VICTORIA—						
31 Creswick	730	577	808	636	1,056	883	1,039	860	998	838	129 Beechworth ..	1,059	893	1,091	874	998	832
32 Daylesford	779	590	817	638	1,073	885	1,000	821	991	806	130 Benalla ..	1,153	879	1,083	834	1,107	846
33 Echunga	811	607	857	672	1,061	876	1,009	827	1,064	852	131 Bright ..	1,119	892	1,044	833	1,078	861
34 Hamilton	871	594	928	636	1,275	924	1,102	847	1,153	825	132 Colac ..	1,161	856	1,117	845	1,131	847
35 Horsham	849	534	988	670	1,202	921	1,179	860	1,134	847	133 Dunalley ..	1,045	853	977	811	985	842
36 Koorumburra	839	596	892	625	1,162	907	1,088	798	1,082	827	134 Euroa ..	1,071	857	1,068	845	1,025	818
37 Kyneton	766	562	790	611	1,114	887	1,040	824	1,080	825	135 Maldon ..	996	875	1,003	846	976	848
38 Maryborough	745	573	808	626	1,029	844	1,037	836	1,022	832	136 Omeo ..	1,158	1,005	1,068	914	1,122	949
39 Mildura	972	608	1,053	696	1,272	939	1,330	907	1,346	921	137 Orbst ..	1,162	890	1,167	864	1,190	871
40 Nhill	887	593	905	656	1,121	887	1,142	883	1,142	861	138 St Arnaud ..	1,188	946	1,071	864	1,078	877
41 Portland	796	592	904	624	1,220	928	1,121	869	1,079	834	139 Shepparton ..	1,149	859	1,151	823	1,146	831
42 Sale	784	551	874	634	1,070	824	1,022	780	1,022	797	140 Stawell ..	1,186	942	1,070	834	1,106	848
43 Swan Hill	975	618	1,000	649	1,279	874	1,204	827	1,257	859	141 Wandigong ..	1,081	954	1,055	870	997	870
44 Walhalla	790	687	808	687	1,025	897	954	852	966	873	142 Wonthaggi ..	1,236	917	1,344	897	1,269	873
45 Wangaratta	825	589	965	662	1,173	876	1,108	824	1,141	844	143 Yackandandah ..	1,038	873	983	830	962	809
46 Warracknabeal	810	555	877	647	1,082	814	1,048	783	1,085	788	QUEENSLAND—						
47 BRISBANE	878	583	919	627	1,166	878	1,050	763	1,129	838	144 Cloncurry ..	1,447	1,032	1,367	980	1,615	1,088
48 Toowoomba	840	603	898	646	1,119	894	992	760	1,094	867	145 Hamilton ..	1,279	896	1,222	775	1,294	847
49 Rockhampton	862	617	920	668	1,184	945	1,063	817	1,090	838	146 Mackay ..	1,227	895	1,155	848	1,230	905
50 Charters Towers	907	658	997	752	1,188	942	1,130	884	1,197	926	147 Roma ..	1,258	937	1,207	869	1,256	905
51 Warwick	822	590	863	635	1,077	863	987	773	1,090	861	S. AUSTRALIA						
52 Bundaberg	851	621	893	650	1,128	873	1,041	828	1,129	884	148 Gawler ..	1,160	877	1,175	863	1,083	837
53 Cairns	1,087	704	1,140	809	1,248	913	1,299	929	1,376	987	W. AUSTRALIA						
54 Charleville	1,089	704	1,041	722	1,398	1,001	1,338	936	1,381	969	149 Cue ..	1,315	1,092	1,316	1,090	1,280	1,033
55 Chillagoe	1,153	834	1,052	892	1,319	1,000	1,112	920	1,083	981	150 Northam ..	1,259	879	1,343	963	1,348	1,176
56 Cooktown	937	745	1,003	799	1,125	959	1,072	931	1,110	979							
57 Cunnamulla	992	724	1,047	779	1,321	1,065	1,124	894	1,128	864							
58 Goondiwindi	958	639	968	680	1,190	935	1,044	808	1,135	858							
59 Gympie	791	600	819	653	1,088	890	1,001	816	1,101	878							
60 Hughenden	1,145	756	1,269	803	1,334	951	1,274	907	1,389	942							
61 Ipswich	874	606	900	632	1,180	899	1,062	780	1,159	891							
62 Longreach	1,047	723	1,123	823	1,200	945	1,094	839	1,323	966							
63 Maryborough	762	584	830	624	1,133	913	1,045	825	1,049	858							
64 Mount Morgan	890	637	951	696	1,204	949	1,103	842	1,194	901							
65 Townsville	996	636	1,123	760	1,343	952	1,245	856	1,414	961							
66 Winton	1,147	803	1,136	817	1,443	997	1,342	934	1,459	1,013							
67 ADELAIDE	1,056	619	1,078	698	1,243	876	1,218	852	1,198	822							
68 Kadina-Moonta	882	636	941	690	1,150	891	1,170	889	1,136	855							
69 Port Pirie	972	644	973	729	1,189	922	1,239	893	1,245	894							
70 Mount Gambier	816	568	894	614	1,100	838	1,067	804	1,065	801							



EXPLANATORY NOTE.—The scale for each of the graphs for groups 1, 3, 5, and 7 is shewn by the figures on the right of the diagram, and that of the graphs for groups 2, 4, 6, and 8 on the left of the diagram, the line marked 1000 shewing the base line (for the year 1911) in each case. The heavy line in each graph represents the index-numbers for all groups combined, the light line indicating in each case the index-numbers for the separate group. (See page 1159.)

(ii.) *House Rent only.* The following table gives similar particulars for *house rent only*, the average for the six capital towns in 1911 being again taken as the basis of the table (= 20 shillings).

**PURCHASING-POWER OF MONEY.—HOUSE RENT.—AMOUNT PAYABLE ON THE AVERAGE IN EACH YEAR FROM 1901 TO 1917 FOR HOUSE RENT IN EACH CAPITAL TOWN, COMPARED WITH A RENT OF £1 IN 1911 IN THE AUSTRALIAN CAPITALS REGARDED AS A WHOLE.**

Year.		Sydney.	Melb'ne.	Brisbane.	Adelaide.	Perth.	Hobart.	Weighted Average of 6 Capital Towns.
		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
1901	...	17 3	14 8	9 9	12 7	16 0	13 4	15 1
1902	...	17 3	14 11	9 10	12 7	15 11	13 5	15 2
1903	...	17 4	14 11	10 1.	12 7	16 0	13 6	15 3
1904	...	17 5	15 3	10 2	12 7	16 0	13 6	15 4
1905	...	17 10	15 5	10 5	14 0	14 9	13 7	15 8
1906	...	17 11	15 8	10 6	15 3	14 4	13 9	15 11
1907	...	18 4	16 1	11 6	16 3	13 8	14 2	16 4
1908	...	18 7	16 7	12 4	17 5	13 7	14 7	16 10
1909	...	19 2	16 10	13 3	18 10	13 4	15 0	17 5
1910	...	19 10	18 4	14 0	20 4	13 11	15 6	18 5
1911	...	21 10	19 5	15 4	22 3	16 3	16 1	<b>20 0*</b>
1912	...	23 8	20 4	16 1	23 2	17 7	16 7	21 3
1913	...	24 11	21 10	17 3	22 6	18 7	17 10	22 4
1914	...	25 7	22 6	17 8	20 10	18 3	18 3	22 8
1915	...	24 5	21 8	17 2	18 8	17 0	18 7	21 7
1916	...	24 3	21 9	17 0	18 7	17 4	18 7	21 7
1917	...	<b>24 3</b>	<b>22 6</b>	<b>17 5</b>	<b>19 2</b>	<b>17 5</b>	<b>19 0</b>	<b>22 0</b>
1917	1st Quarter	24 3	22 3	17 10	19 1	17 5	18 11	21 10
	2nd "	24 3	22 3	17 3	19 1	17 5	19 0	21 10
	3rd "	24 2	22 7	17 3	19 2	17 6	19 1	22 0
	4th "	<b>24 6</b>	<b>22 10</b>	<b>17 2</b>	<b>19 5</b>	<b>17 6</b>	<b>19 1</b>	<b>22 2</b>

\* Basis of Table.

**7. Monthly Fluctuations in Retail Prices of Food and Groceries, July, 1914, to June, 1918.**—The following table has been prepared in order to shew the variations in retail prices of food and groceries since July, 1914, the last month prior to the outbreak of war. Particulars for each town are given in the form of index-numbers for food and groceries in each of the months specified. In the last column the percentage increase is shewn for each town in June, 1918, compared with July, 1914.

The aggregate result for the thirty towns covered by the investigations shews that prices were 32.4 per cent. higher in June, 1918, than in July, 1914.

**RETAIL PRICES INDEX-NUMBERS (FOOD AND GROCERIES), FOR EACH OF THIRTY TOWNS FOR THE MONTHS SPECIFIED, WITH WEIGHTED AVERAGE FOR SIX CAPITAL TOWNS IN 1911 AS BASE (=1000).†**

Particulars.	1914.	1915.		1916.		1917.		1918.		Per cent. increase from July, 1914, to June, 1918
	July.	May.	June.	May.	June.	May.	June.	May.	June.	
<b>NEW SOUTH WALES—</b>										
Sydney ... ..	1,153	1,268	1,338	1,527	1,512	1,499	1,507	1,546	1,548	34.3
Newcastle ... ..	1,147	1,285	1,334	1,507	1,489	1,527	1,529	1,576	1,581	37.8
Broken Hill ... ..	1,468	1,575	1,666	1,817	1,844	1,814	1,807	1,848	1,850	26.0
Goulburn ... ..	1,183	1,312	1,335	1,550	1,542	1,476	1,458	1,523	1,537	29.9
Bathurst ... ..	1,097	1,243	1,297	1,479	1,483	1,473	1,480	1,521	1,529	39.4
*Weighted Average ...	1,165	1,283	1,351	1,537	1,524	1,514	1,520	1,560	1,562	34.1
<b>VICTORIA—</b>										
Melbourne ... ..	1,106	1,386	1,478	1,485	1,479	1,409	1,418	1,486	1,486	34.4
Ballarat ... ..	1,103	1,424	1,503	1,506	1,501	1,406	1,403	1,459	1,456	32.0
Bendigo ... ..	1,107	1,390	1,464	1,482	1,480	1,432	1,440	1,487	1,482	33.9
Geelong ... ..	1,089	1,350	1,429	1,514	1,506	1,432	1,434	1,481	1,473	35.3
Warrnambool ... ..	1,087	1,404	1,439	1,493	1,484	1,436	1,438	1,514	1,514	39.3
*Weighted Average ...	1,105	1,388	1,476	1,488	1,482	1,412	1,419	1,484	1,484	34.3
<b>QUEENSLAND—</b>										
Brisbane ... ..	1,057	1,326	1,344	1,491	1,391	1,375	1,380	1,460	1,494	41.3
Toowoomba ... ..	1,041	1,371	1,390	1,457	1,397	1,360	1,372	1,440	1,470	41.2
Rockhampton ... ..	1,156	1,378	1,403	1,613	1,485	1,404	1,424	1,501	1,502	29.9
Charters Towers ... ..	1,246	1,588	1,563	1,644	1,640	1,582	1,555	1,684	1,675	34.4
Warwick ... ..	1,083	1,379	1,393	1,462	1,392	1,369	1,406	1,520	1,556	43.7
*Weighted Average ...	1,062	1,359	1,374	1,512	1,422	1,394	1,399	1,496	1,509	39.5
<b>SOUTH AUSTRALIA—</b>										
Adelaide ... ..	1,250	1,485	1,609	1,584	1,590	1,480	1,441	1,620	1,614	29.1
Kadina, Moonta, Wallaroo	1,230	1,488	1,632	1,612	1,627	1,573	1,571	1,595	1,590	29.3
Port Pirie ... ..	1,291	1,530	1,652	1,643	1,645	1,603	1,613	1,657	1,654	28.1
Mt. Gambier ... ..	1,064	1,382	1,487	1,504	1,500	1,445	1,441	1,523	1,538	44.5
Petersburg ... ..	1,340	1,536	1,577	1,622	1,647	1,584	1,602	1,611	1,602	19.6
*Weighted Average ...	1,247	1,485	1,606	1,586	1,593	1,491	1,458	1,618	1,612	29.3
<b>WESTERN AUSTRALIA—</b>										
Perth ... ..	1,340	1,502	1,528	1,550	1,630	1,586	1,543	1,524	1,552	15.8
Kalgoorlie and Boulder	1,664	1,806	1,823	1,814	1,867	1,799	1,802	1,791	1,788	7.5
Mid. Junction & Guildford	1,354	1,532	1,549	1,534	1,608	1,598	1,566	1,524	1,539	13.7
Bunbury ... ..	1,418	1,593	1,621	1,608	1,723	1,753	1,745	1,656	1,682	18.6
Geraldton ... ..	1,445	1,689	1,703	1,675	1,691	1,630	1,642	1,633	1,630	12.8
*Weighted Average ...	1,412	1,573	1,597	1,608	1,682	1,636	1,605	1,585	1,606	13.7
<b>TASMANIA—</b>										
Hobart ... ..	1,211	1,401	1,449	1,551	1,525	1,471	1,497	1,648	1,645	35.8
Launceston ... ..	1,144	1,345	1,385	1,538	1,514	1,478	1,497	1,588	1,580	38.1
Zeehan ... ..	1,292	1,531	1,578	1,683	1,690	1,610	1,625	1,758	1,769	36.9
Beaconsfield ... ..	1,230	1,436	1,488	1,647	1,634	1,587	1,615	1,617	1,625	32.1
Queenstown ... ..	1,315	1,519	1,582	1,697	1,729	1,625	1,643	1,722	1,733	31.8
*Weighted Average ...	1,201	1,399	1,445	1,566	1,547	1,494	1,517	1,638	1,636	36.2
†Weighted Aver. for C'wealth	1,164	1,372	1,443	1,524	1,519	1,473	1,473	1,539	1,541	32.4

\* Average for the five towns. † Average for thirty towns.

† See remarks on page 31 of Labour Report No. 6, with reference to change of base period.

NOTE.—Corresponding index-numbers for the intervening months are given in Labour Reports Nos. 6 and 7; in Labour Bulletins Nos. 17 and 18, and in the Quarterly Summary of Statistics Nos. 70 and 71.

## § 8. Investigation into Purchasing-Power of Money in 150 Towns in Commonwealth.

1. **Introduction.**—In order to supplement the information as to variations in the purchasing-power of money, which is collected each month for the thirty towns specified in the preceding section, a special investigation was initiated in November, 1913, as to the purchasing-power of money in seventy additional towns in the Commonwealth. This investigation was repeated in November, 1914, November, 1915, November, 1916, and November, 1917. At the three latter periods the number of additional towns from which returns are collected annually was increased to 120. It is intended to carry it out in that month each year, thus making information available annually for 150 towns.

2. **Map shewing relative Purchasing-Power of Money.**—On the map on page 1155 each town is shewn by means of a number, the reference list at the side of the map indicating the town corresponding to each number and its relative index-numbers for the years 1913, 1914, 1915, 1916 and 1917. The figures in black type relate to the cost of food, groceries and rent of 5-roomed houses, while those in light type refer to food and groceries only. A glance at the map shews that the distribution of the 150 towns selected is in close approximation to the density of population (indicated by hatching). The weighted average cost for 100 towns in 1913 is taken as base, and the index-numbers are comparable in all respects.

## § 9. Wholesale Prices.

1. **General.**—The results of an investigation into wholesale prices in Melbourne were given in some detail in Report No. 1, from 1871 to the end of September, 1912. In Report No. 2 summarised results were included for the whole of the latter year; in Report No. 5 those for the year 1913; in Report No. 6 those for the years 1914 and 1915, in Report No. 7 those for the year 1916, and in Report No. 8 those for the year 1917.

The index-numbers up to the year 1911 are based on the prices of eighty commodities, but since that year the number has been increased to ninety-two.\* The methods followed for the computation of the wholesale price index-numbers are the same as those adopted in regard to retail prices. The commodities included, the units of measurement for which the prices are taken, and the mass-units, indicating the relative extent to which each commodity, in the units of measurement specified, is used or consumed, are shewn in a tabular statement in Report No. 8 (page 59).

2. **Index-Numbers and Graphs.**—Index-numbers have been computed for each group of commodities, as well as for all groups together. The index-numbers for the several groups, and for all groups together, are shewn in the following table.

(i.) *Table of Index-numbers.*—The index-numbers have in each case been computed with the prices in the year 1911 as base; that is to say, *they shew the amount which would have had to be expended in each of the years specified in order to purchase what would have cost £1000 in 1911, distributed in purchasing the relative quantities (indicated by the mass-units), of the several commodities included in each group, and in all groups respectively.* Thus, in the last column it may be seen that the cost of the relative quantities of the various commodities was 1229 in 1871, and 974 in 1901, as compared with 1000 in 1911, 1170 in 1912, 1088 in 1913, 1149 in 1914, 1604 in 1915, and 1662 in 1917. In other words, prices were lower in 1911 than in either 1871, 1914, 1915, or 1916 or 1917, and the purchasing-power of money in 1911 was, accordingly, greater. Again, prices were lower in 1901 than in 1911, and the purchasing-power of money in the former year was, therefore, greater.

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\* In the computation of the index-numbers for years prior to 1911, the aggregate expenditure on 80 commodities in 1911 is taken as base (=1000), while for later years the aggregate expenditure on 92 commodities is taken.



**MELBOURNE WHOLESALE PRICES INDEX-NUMBERS, 1861 TO 1917,  
COMPUTED TO YEAR 1911 AS BASE.**

YEAR.	I. Metals and Coal.	II. Jute, Leather, &c.	III. Agricultural Produce, &c.	IV. Dairy Produce.	V. Gro- ceries.	VI. Meat.	VII. Building Mater- ials.	VIII. Chem- icals.	All com- modities together.
1861 ...	1,438	1,381	1,583	1,008	1,963	...	1,070	2,030	<b>1,538</b>
1871 ...	1,066	1,257	1,236	864	1,586	...	1,044	1,409	<b>1,229</b>
1881 ...	1,178	1,115	1,012	935	1,421	...	1,091	1,587	<b>1,121</b>
1891 ...	895	847	1,024	995	1,032	888	780	1,194	<b>45</b>
1901 ...	1,061	774	928	1,029	1,048	1,345	841	917	<b>874</b>
1902 ...	1,007	756	1,193	1,215	945	1,447	837	881	<b>1,051</b>
1903 ...	923	834	1,209	1,059	936	1,443	875	921	<b>1,049</b>
1904 ...	821	885	754	876	916	1,427	845	875	<b>890</b>
1905 ...	772	850	894	980	942	1,209	801	859	<b>810</b>
1906 ...	882	978	916	972	923	1,110	896	864	<b>948</b>
1907 ...	1,037	1,017	973	1,020	948	1,294	968	961	<b>1,021</b>
1908 ...	1,033	901	1,312	1,198	968	1,335	935	891	<b>1,115</b>
1909 ...	1,014	907	1,000	1,119	978	1,088	911	815	<b>893</b>
1910 ...	1,004	1,052	969	1,100	999	1,008	996	898	<b>1,003</b>
<b>1911 ...</b>	<b>1,000</b>	<b>1,000</b>	<b>1,000</b>	<b>1,000</b>	<b>1,000</b>	<b>1,000</b>	<b>1,000</b>	<b>1,000</b>	<b>1,000</b>
1912 ...	1,021	991	1,370	1,206	1,052	1,357	1,057	978	<b>1,170</b>
1913 ...	1,046	1,070	1,097	1,054	1,024	1,252	1,128	995	<b>1,088</b>
1914 ...	1,099	1,032	1,207	1,137	1,021	1,507	1,081	1,253	<b>1,149</b>
1915 ...	1,284	1,017	2,162	1,530	1,133	2,435	1,375	1,528	<b>1,604</b>
1916 ...	1,695	1,423	1,208	1,485	1,322	2,515	1,491	1,760	<b>1,504</b>
1917 ...	2,129	2,008	1,157	1,423	1,343	2,403	1,884	2,171	<b>1,682</b>

NOTE.—The figures given in this table are comparable in the vertical columns, but are not directly comparable horizontally. The index-numbers are reversible.

(ii.) *Graphs.*—The index-numbers are shewn for each group and for all groups combined in the graphs on page 1156. The heavy line, repeated on each graph, represents the index-numbers for the weighted average for all groups, and is shewn so that comparison may be made between the price levels for all commodities and those for the commodities comprised in each group separately. The index-numbers for the individual groups are represented by the light lines. The broken lines at the commencement of each graph shew the index-numbers for the separate years 1861 and 1866, the continuous records commencing with the year 1871. The actual index-numbers for the whole period were given in Report No. 1.

3. **Seasonal Fluctuations and Tables of Prices.**—Information as to seasonal fluctuations in wholesale prices was given in Report No. 2 (page 64) and tables of prices of each commodity were given in Appendixes to Reports Nos. 1, 2, 5, 6, 7, and 8.

4. **Fluctuations in Wholesale Prices, July, 1914, to March, 1918.**—Since the outbreak of war, prices of many commodities have increased considerably. This is shewn in the following table in which the index-numbers are given for each group for the month of March, 1918, taking July, 1914, the last month before the outbreak of war, as base (= 1000) for each group :—

**MELBOURNE WHOLESALE PRICES.—VARIATIONS BETWEEN JULY, 1914,  
AND MARCH, 1918.**

Particulars.	I. Metals and Coal.	II. Jute, Leather, etc.	III. Agricultural Produce, etc.	IV. Dairy Produce.	V. Groceries	VI. Meat.	VII. Building Materials.	VIII. Chem- icals.	All Groups.
July, 1914 ...	<b>1,000</b>	<b>1,000</b>	<b>1,000</b>	<b>1,000</b>	<b>1,000</b>	<b>1,000</b>	<b>1,000</b>	<b>1,000</b>	<b>1,000</b>
March, 1918 ...	2,161	2,463	1,232	1,188	1,324	1,556	2,107	3,275	1,668

It may be seen that there has been an aggregate increase in prices during the period specified of no less than 34.4 per cent. The greatest increase, 227.5 per cent., is recorded in Group VIII. (Chemicals), and the least, 18.8 per cent., in Group IV. (Dairy Produce).

## § 10. Control of Trade and Prices during War.

1. **General.**—Shortly after the outbreak of war, a conference of Federal and State Ministers met to discuss the financial position and other matters, and it was decided that for the purpose of controlling the prices of foodstuffs, each State should introduce *uniform* legislation, since it was obvious that this was necessary in view of all the circumstances.

Particulars of the various Acts passed by the State Governments will be found in Labour Bulletin No. 6, September, 1914, pages 132-147.

As a further outcome of this conference, in addition to the various State Boards and Commissions, a Federal Royal Commission, consisting of the Hon. Alfred Deakin (chairman), the Hon. Dugald Thomson, formerly Minister for Home Affairs, and Mr. G. H. Knibbs, C.M.G., Commonwealth Statistician, was appointed to collect information and report upon such matters as the supply of foodstuffs and other necessities required by and available for Australia during the war; the amount then available and likely to be so for export, having due regard to the requirements of Australia; the development of fresh sources of supply; and any other important matters relating to conditions of trade and industry arising from the war. This commission ceased to exercise its functions after the 30th October, 1914.

There has been great diversity in regard to the operations of the various authorities created in the different States. In New South Wales and Queensland prices have been fixed for a large number of commodities, whereas in Victoria only a comparatively few commodities were dealt with, and these only during the latter half of 1914 and early in 1915. In South Australia it was not until the latter part of 1915 that the Necessary Commodities Commission began to fix prices. In Western Australia the Food Stuffs Commission fixed the price of some commodities, and refused to sanction proposed advances in others. The commission was revoked in October, 1915. In Tasmania the Legislative Council rejected the Bill creating a Necessaries of Life Control Bill, and consequently no action has been taken in that State to deal with prices of commodities in the manner adopted by the other States.

2. **Federal Control of Prices.**—In March, 1916, the Federal Government created a Prices Adjustment Board with authority to fix the prices of flour, bread, bran, and pollard. The Board made investigations, and fixed the prices of flour, bran, and pollard in every milling centre of Australia. Prices of bread were fixed in upwards of 1000 separate towns, after investigations had been made as to the cost of manufacture, distribution, etc. An important judgment of the High Court, as to the powers of Government to fix prices, was obtained as the result of the conviction of a Melbourne suburban baker, by the local magistrate, for selling bread at a higher rate than that fixed by the Prices Adjustment Board. This conviction was appealed against, but the High Court, by a majority decision, affirmed that in matters affecting the safety of Australia the Government, under the War Precautions Act, had plenary powers, and that the decision as to what is necessary rests with the Executive and not with the judicial authority.

After this judgment, the scope of the investigations and activities of the Prices Adjustment Board were considerably enlarged, and an exhaustive list of commodities were declared to be necessary commodities. Later, a Commissioner was appointed in each State to make investigations, and to make recommendations to the Minister as to the necessity for fixing maximum selling prices of various commodities.

Shortly after the appointment of these Commissioners, the members of the Prices Adjustment Board resigned in a body, and since then the control of prices has been in the hands of the Minister acting upon the recommendations of the State Commissioners. The Commissioner for Victoria acts also as Chief Prices Commissioner. Prices have been fixed, by regulations under the War Precautions Act, for a large number of commodities.

## SECTION XXXIV.

## MISCELLANEOUS.

## § 1. Immigration.

## (A) The Encouragement of Immigration into Australia.

1. **Introduction.**—Various measures have from time to time been adopted by the Commonwealth and State Governments, as well as by private societies and individuals, with a view to promoting the immigration of suitable classes of settlers into Australia. Since the outbreak of war, however, little is being done. The activities of the Commonwealth Government (which is vested with constitutional powers in regard to immigration under Sec. 51, xxvii., of the Constitution Act 1900) with respect to the encouragement of immigration, have hitherto practically been confined to advertising the resources and attractions of Australia in handbooks, newspapers, and periodicals.

2. **State Immigration.**—The advertising in the United Kingdom of the resources of the individual States has been carried out by their Agents-General in London. During 1910 and the three subsequent years, a great advance was made in Australian immigration generally, the State Governments having adopted more active and direct means than had hitherto existed for making the advantages and opportunities of their respective States better known to the people of the United Kingdom, Europe, and America. At the present time, however, owing to war, no State action is being taken in the matter of immigration. In previous issues of the Year Book will be found in detail the various methods under which intending immigrants could obtain information and assistance (see Year Book No. 8, p. 1053).

Particulars of the net immigration to the Commonwealth are given on page 116, and of assisted immigration on page 129 hereinbefore.

3. **Commonwealth Scheme of Immigration.**—It is the function of the Commonwealth Department of Home and Territories to advertise the attractions of Australia for settlers, farm workers, and tourists. The Commonwealth carries on the general advertising of Australia by means of paragraphs and illustrated articles in British, European, and American publications, while the several States advertise for the class of immigrants they specially require. Bioscope films are utilised for the illustration of lectures. Exhibitions are held throughout the chief rural districts and at the important agricultural shows in Great Britain, and handbooks for settlers and tourists, as well as folders and other publications, have been issued. Pictorial posters are also utilised. The outbreak of war, however, interrupted the vigorous campaign that had been initiated, and for the present, the matter of advertising and recruiting for immigrants is practically at a standstill.

4. **The High Commissioner for Australia and the Agents-General.**—Intending settlers or immigrants may, on application, obtain information from the High Commissioner for Australia—

THE RIGHT HON. A. FISHER, P.C.,

AUSTRALIA HOUSE,

STRAND,

LONDON, W.C. .

Information regarding individual States may be obtained from the officials specified below:—

### AUSTRALIAN AGENTS-GENERAL.

<i>New South Wales</i>	Hon. C. G. WADE, K.C. ...	123-125 Cannon St., London, E.C.
<i>Victoria</i> ...	Sir PETER MCBRIDE ...	Australia House, Strand, London
<i>Queensland</i> ...	Col. the Hon. Sir T. B. ROBINSON ...	Marble Hall, 409-10, Strand, London
<i>South Australia</i>	Hon. EDWARD LUCAS ...	85 Gracechurch St., London, E.C.
<i>Western Australia</i>	Hon. J. W. CONNOLLY ...	Savoy House, Strand, London.
<i>Tasmania</i> ...	Major the Hon. SIR J. MCCALL, M.D. ...	56 Victoria St., Westminster, London

### (B) The Regulation of Immigration into Australia.

1. **Pre-Federal Restrictions.**—(i.) *Alien Races.* The several States of Australia had regarded it as desirable, long prior to Federation, to impose certain restrictions upon the admission of persons wishing to become inhabitants of those States. The influx of Chinese, for example, was limited by stringent statutes, and later, general Acts were passed in some of the States which had the effect of restricting the immigration of other—principally Asiatic—races.

(ii.) *Undesirable Immigrants.* Further restrictions were placed upon the admission of persons who were undesirable as inhabitants, either for medical or moral reasons, or who were likely to be an economic burden upon the community.

2. **Powers and Legislation of the Commonwealth.**—(i.) *Constitutional Powers.* By Chap. I., Pt. V., Sec. 51, xxvii. and xxviii. of the Commonwealth Constitution Act the Parliament of the Commonwealth is empowered to make laws with respect to immigration and emigration and the influx of criminals. (See page 24 herein.)

(ii.) *Legislation.* The powers above specified have now been exercised by the Commonwealth Government, and the laws passed in pursuance thereof supersede the previously existing State laws.

The first Act passed, dealing with this matter, was the Immigration Restriction Act 1901, which contained provisions restricting the immigration of the classes of persons previously mentioned, and also persons under contract to perform manual labour. The provisions regarding contract labour were repealed and amended by the Contract Immigrants Act 1905, and the principal Act was also amended by the Immigration Restriction Amendment Act 1905, and subsequently by the Immigration Restriction Acts of 1908 and 1910, and the Immigration Act of 1912. The immigration of alien races and undesirable persons is now regulated by the Immigration Act 1901-12. Admission of immigrants under contract to perform manual labour is, however, still controlled by the provisions of the Contract Immigrants Act 1905, and will be permitted if the contract is in writing, is made by or on behalf of some person named, who must be resident in Australia, and approved by the Minister. Such approval, which must be obtained before the immigrant lands in Australia, will not be given if the contract is made with the view to affecting an industrial dispute, or if the remuneration and other terms are not as advantageous to the contract immigrant as those current for workers of the same class at the place where the contract is to be carried out.

There is an additional provision where the proposed immigrant is not a British subject born in the United Kingdom or descendant of such a person. In such case it has to be proved that there is a difficulty in the employers obtaining in the Commonwealth a worker of at least equal skill and ability.

In case of infraction of the law it is provided that the contract is absolutely void and the immigrant and employer are both liable to penalties, the employer is also liable to compensate the immigrant until he obtains employment, or, at the option of the immigrant, to provide expenses for his return to the country whence he came.

**3. Prohibited Immigrants.**—(i.) *Provisions of the Act.* Persons comprised in the following classes are prohibited from entering the Commonwealth:—(a) Any person who fails to pass the dictation test; that is to say, who fails to write out not less than fifty words of a language prescribed by regulation when dictated to him by an officer administering the Act. (b) Any person not possessed of the prescribed certificate of health. (c) Any idiot, imbecile, feeble-minded person, or epileptic. (d) Any person suffering from a serious transmissible disease or defect. (e) Any person suffering from pulmonary tuberculosis, trachoma, or from any loathsome or dangerous communicable disease, either general or local. (f) Any person suffering from any other disease or mental or physical defect, which from its nature is, in the opinion of an officer, liable to render the person concerned a charge upon the public or upon any public or charitable institution. (g) Any person suffering from any other disease, disability, or disqualification which is prescribed. (h) Any person who has been convicted of a crime and sentenced to imprisonment for one year or more, unless five years have elapsed since the termination of the imprisonment. (i) Any person who has been convicted of any crime involving moral turpitude, but whose sentence has been suspended or shortened conditionally on his emigration, unless five years have elapsed since the expiration of the term for which he was sentenced. (j) Any prostitute, procurer, or person living on the prostitution of others.

Regarding (a) it may be stated that the Act of 1901 provided for the dictation of not less than fifty words of a European language. The Act of 1905 provided for the retention of this test until regulations be passed prescribing the languages to be employed. No such regulations have yet been made, and the provision of the Act of 1901 is therefore *de facto* still in force. It may be stated that in general practice the dictation test is not imposed upon persons of European race.

Regarding (b), the Amending Act of 1912 provides for the establishment of Commonwealth Medical Bureaux at places outside the Commonwealth, and the appointment of medical referees to examine intending immigrants and issue certificates of health in the prescribed form, on payment of a prescribed fee. A chief medical officer has already been appointed to take charge of the Bureaux attached to the High Commissioner's Office in London. This officer arranges for the selection of suitable medical referees for appointment to act at various centres throughout the United Kingdom.

Provision is also made for the medical examination of, and the issues of certificates of health to intending immigrants who embark at a port where there is no medical referee, or who arrive in the Commonwealth without a certificate in the prescribed form.

Pending the proper organisation in the United Kingdom of the Medical Bureaux and the appointment of medical referees, the requirement that immigrants must produce a certificate of health on arrival in Australia will not be enforced.

(ii.) *Exemptions.* From these restrictions the following persons are exempted:—(a) Any person holding an exemption certificate. (b) Members of the King's regular land and sea forces. (c) The master and crew of any public vessel of any Government. (d) The master and crew of any other vessel landing during the stay of the vessel in a Commonwealth port. The exemption of members of a crew during the vessel's stay in port is subject to the production of identification cards to an officer on demand. This provision will not be enforced in respect of white members of a crew, but there is a further provision which empowers an officer to refuse any member of a crew permission to land unless he is satisfied that such person is free from a communicable disease. Before the ship can obtain her outward clearance the crew must, at the demand of an officer administering the Act, be mustered, and if any member of the crew be missing,

and would otherwise, in the opinion of the officer, have been a prohibited immigrant, then such person is deemed to be a prohibited immigrant, and until the contrary be proved, to have entered the Commonwealth contrary to the Act. (e) Any Commissioner of, or other person accredited from the Imperial or any other Government.

(iii.) *General Provisions.* An immigrant may be required to pass the dictation test at any time within two years after he has entered the Commonwealth. This applies particularly to coloured persons, but any immigrant found within three years of entering the Commonwealth to be suffering from a prohibitory disease or defect may be deemed to be a prohibited immigrant unless it is proved to the Minister's satisfaction that he was free from the disease or disability at the time of his arrival in Australia.

A prohibited immigrant within the meaning of (a) above may, at the discretion of an officer, be allowed to enter the Commonwealth, or to remain within it, upon depositing £100 and within thirty days either obtaining an exemption certificate or departing from the Commonwealth; in either case the deposit is returned.

The punishment for breach of the Act by a prohibited immigrant is imprisonment for six months and deportation in addition to or in substitution for such imprisonment, if so ordered.

4. *Liabilities of Shipmasters and Others.*—The master, owners, agents, and charterers of a vessel from which a prohibited immigrant enters the Commonwealth are jointly and severally liable to a penalty of £100 for each entrant. The vessel may be detained as security, but may be released upon the giving of a bond with two sureties for the payment of any penalties; it may also be seized and sold in default of payment of penalties. The master, owners, agents, and charterers may be required to provide a return passage for the prohibited emigrant and to pay for his maintenance during his detention prior to deportation. Masters of the vessels are authorised to prevent such a person from landing, and to obtain any necessary assistance.

Under the Immigration Restriction Act 1908, any person on board a vessel at the time of her arrival from any place outside Australia at any port in Australia who is not (a) a *bonâ fide* passenger of the vessel, or (b) a member of the crew of the vessel whose name is on the articles, is deemed to be a stowaway, unless the master gives notice that the person is on board the vessel, and does not permit him to land until an officer has had an opportunity of satisfying himself that the person is not a prohibited immigrant. The master, owners, agents, and charterers of a vessel are jointly and severally liable to a penalty of £100 for each stowaway brought into any port in Australia. The Immigration Act 1912 provides for a penalty of £200 for each stowaway in cases where the master has been convicted of a similar offence within the preceding twelve months. Power is given to search vessels for stowaways. The Immigration Restriction Act 1910 provides penalties for being concerned in bringing immigrants secretly to the Commonwealth.

5. *Agreements with other Countries.*—Arrangements may be made with the Government of any country regulating the admission into Australia of the subjects or citizens of such country, such subjects not being, during the subsistence of the arrangement, required to pass the dictation test.

Persons who have resided either continuously or from time to time in the Commonwealth for a period of five years in the whole, and who are about to depart from it, being persons, who, if they return, would be prohibited immigrants, may obtain a certificate of exemption entitling them to return.

Certificates of exemption are granted by the Minister for Home and Territories, whose department administers the Act, and by the Collector of Customs in each State.

6. *Statistics.*—The following tables shew the number of persons who desired but were not permitted to land, those who were allowed to land, and the nationality of the persons admitted.

**PERSONS ADMITTED OR REFUSED ADMISSION TO COMMONWEALTH UNDER  
PROVISIONS OF IMMIGRATION RESTRICTION ACT, 1909 to 1917.**

Year.	Persons Admitted who Passed Education Test.	Persons Admitted without Passing Education Test.	Persons Refused Admission.
1909 ...	1	83,324	108
1910 ...	Nil	94,543	42
1911 ...	Nil	139,020	83
1912 ...	Nil	163,990	187
1913 ...	Nil	140,251	109
1914 ...	Nil	110,701	54
1915 ...	Nil	70,436	56
1916 ...	Nil	59,140	233
1917 ...	Nil	53,036	13

**NATIONALITY OF PERSONS ADMITTED WITHOUT TEST, 1909 to 1917.**

Nationality.	1909. (a)	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.
<b>EUROPEANS—</b>									
Austrians ...	895	815	1,184	855	794	676	(f) 27	(f) 10	...
Belgians ...	35	50	84	95	63	63	105	69	35
British ...	71,201	81,457	124,061	146,602	122,443	93,136	60,505	50,469	45,988
Danes ...	272	269	393	371	444	478	305	173	137
Dutch ...	187	175	307	435	288	287	182	156	194
French ...	1,347	1,160	1,166	1,238	1,491	1,187	595	516	676
Germans ...	2,109	2,449	2,517	3,501	3,155	3,395	(f) 890	(f) 452	(f) 58
Greeks ...	327	380	583	736	480	772	361	160	265
Italians ...	1,078	883	1,365	1,632	1,963	1,642	645	179	96
Maltese ...	...	...	41	122	193	464	57	173	212
Poles ...	24	11	34	17	7	12	2	...	1
Portuguese ...	10	3	6	9	25	12	1	...	7
Rumanians ...	11	3	13	24	9	34	6	8	13
Russians ...	466	735	994	1,159	1,334	1,446	716	497	341
Scandinavians ...	891	1,210	1,384	1,303	1,285	1,489	1,202	736	552
Spaniards ...	56	49	128	118	116	169	206	51	37
Swiss ...	131	109	130	209	202	220	64	40	21
Turks ...	14	10	10	6	5	19	1	1	...
Other Europeans (b) ...	16	22	27	(c) 57	5	(d) 165	13	7	1
<b>AMERICANS—</b>									
North Americans ...	692	746	914	1,386	1,713	1,529	1,066	1,050	870
South Americans ...	14	13	17	37	14	31	5	16	24
American Indians ...	...	...	31	9	...	1	1	...	...
Negroes ...	6	14	13	47	7	23	9	...	9
West Indians ...	6	13	11	8	1	3	2	9	1
<b>ASIATICS—</b>									
Afghans ...	3	2	14	17	7	2	3	...	...
Arabs ...	1	1	1	18	14	19	2	6	...
Burmese ...	1	...	...	...	1	1	1	...	...
Chinese ...	1,729	1,817	2,009	2,250	2,286	1,975	2,287	2,289	2,016
Cingalese ...	10	14	4	17	8	9	6	18	11
Eurasians ...	6	14	7	13	2	...	...	...	...
Filipinos ...	37	66	17	13	12	4	15	15	15
Hindoos ...	130	156	188	157	187	305	144	133	111
Japanese ...	509	610	459	698	822	387	423	1,089	888
Javanese ...	52	4	12	6	3	20	3	4	20
Malays ...	309	304	479	326	303	291	285	254	190
Syrians ...	73	95	104	75	31	19	5	14	13
<b>OTHER RACES—</b>									
Maoris ...	108	62	31	32	41	21	16	6	2
Mauritians ...	3	4	9	2	7	1	...	...	...
Pacific Islanders ...	94	54	69	92	105	101	37	59	40
Papuan ...	439	622	139	196	171	189	185	178	132
St. Helena Blacks ...	1	...	...	...	...	...	...	...	...
Unspecified ...	31	141	(e) 65	(e) 102	(e) 214	(e) 104	(e) 58	(e) 225	63
<b>Total ...</b>	<b>83,324</b>	<b>94,543</b>	<b>139,020</b>	<b>163,990</b>	<b>140,251</b>	<b>110,701</b>	<b>70,436</b>	<b>59,140</b>	<b>53,036</b>

(a) One person was admitted, after passing the test, in each of the years 1908 and 1909. (b) Not specified. (c) Bulgarians. (d) Including 162 Bulgarians. (e) A large percentage of these immigrants was Timorese. (f) Principally prisoners of war and their families.

The following table has been prepared, shewing to what extent immigration has taken place into the several States of the Commonwealth from 1909 to 1917:—

### IMMIGRATION INTO THE SEVERAL STATES OF THE COMMONWEALTH, 1909-1917.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N.T.	C'wealth.
1909	51,170	13,602	6,720	3,169	6,343	2,172	148	83,324
1910	53,029	14,942	10,353	3,988	9,881	2,168	182	94,543
1911	69,640	21,488	17,778	7,039	18,386	4,563	126	139,020
1912	86,239	34,568	11,820	10,035	16,624	4,480	224	163,990
1913	73,946	29,121	10,496	8,220	15,985	2,350	133	140,251
1914	67,221	20,727	8,594	4,820	6,954	2,249	143	110,708
1915	44,899	13,028	3,963	1,847	4,358	1,925	416	70,436
1916	36,782	12,970	2,426	924	4,054	1,735	249	59,140
1917	32,825	10,701	1,814	1,540	4,761	1,133	262	53,036

## § 2. Patents, Trade Marks, and Designs.

**1. Devolution of Jurisdiction upon the Commonwealth.**—Prior to the establishment of Federation, and for a few years thereafter, each Australian State possessed independent jurisdiction in respect of patents, copyrights, trade marks, and designs, and had, with the exception of Tasmania in regard to copyrights, enacted its own laws. Any person, therefore, who desired to obtain the grant of a patent, or the registration of any copyright, trade mark, or design had necessarily, with the exception aforesaid, to incur the trouble and expense of making separate applications in each State. The Commonwealth Constitution Act conferred upon the Federal Parliament power to legislate respecting these matters. (See page 24 hereinbefore.) The Patents Act of 1909 applied the laws relating to patents for inventions to the Territory of Papua.

The State Acts, though in general based upon the Imperial Statutes dealing with these subjects, were not wholly governed by them. The Commonwealth Acts, both in regard to principle and practice, have the same general foundation as the Imperial Statutes, but in some respects have been modified and brought into line in accordance with Australian experience.

**2. Patents.**—The first Commonwealth Patents Act was passed in 1903, and was amended in 1906, 1909, 1910, 1915 and 1916. (See page 42 *ante*.) Under these Acts, which are administered by a "Commissioner of Patents," the powers and functions vested under the States Acts became vested in the Commonwealth. A single Commonwealth patent now gives throughout the Commonwealth and the Territory of Papua that protection which formerly could only be obtained by procuring a patent in each State and the said Territory. The rights of State patentees or the patentees in the Territory of Papua are in all cases reserved to them. The holder of a State patent in force may obtain, for a period not exceeding the unexpired time thereof, a Commonwealth patent for the invention comprised in the State patent; provided, however, that any State other than the State in which the patent under the States Patent Act was granted may be excepted from the patent if the Commissioner of Patents is satisfied that the invention either (a) is not novel, (b) has been made the subject of a pending application, or (c) has been published in such State. Comparatively small fees, totalling £3, are now sufficient to obtain for an inventor protection throughout the Commonwealth and the Territory of Papua, and the only renewal fee (£5) is payable before the expiration of the seventh year of the patent, or within such extended time, not exceeding one year, and upon payment of further fees as may be allowed.



(i.) *Applications for Patents.* Any of the following persons may make application for a patent :—(a) The actual inventor. (b) His assignee, agent, attorney, or nominee. (c) The actual inventor or his nominee jointly with the assignee of a part interest in the invention. (d) The legal representative of a deceased actual inventor or of his assignee. (e) Any person resident in the Commonwealth to whom the invention has been communicated by the actual inventor, his legal representative, or assignee (if the actual inventor, his legal representative, or assignee is not resident in the Commonwealth). An application for a patent must be for one invention only, and must be made in the form prescribed, and lodged by being left at or sent by post to the Patent Office at Melbourne. It must be accompanied either by a provisional or a complete specification. The application must contain a declaration in the prescribed form setting out the facts relied on to support the application, and must be signed by the applicant before a witness.

(ii.) *Term for which Granted.* The term for the duration of every patent is limited to fourteen years from the date of application. A patent ceases if the patentee fails to pay the renewal fee within the prescribed time.

(iii.) *Opposition to Grant of Patent.* Within three months of the advertisement of the acceptance of a complete specification, or within such further time, not exceeding one month, as the Commissioner on application made within the three months allows, any person may give notice at the Patent Office of opposition to the grant on any of the following grounds :—(a) That the applicant has obtained the invention from the opponent or from a person of whom he is the legal representative or assignee or nominee. (b) That the invention has not been communicated to the applicant by the actual inventor, his legal representative or assignee (if the actual inventor, his legal representative or assignee is not resident in the Commonwealth). (c) That the invention has been patented in the Commonwealth on an application of prior date or has been patented in a State. (d) That the complete specification describes or claims an invention other than that described in the provisional specification, and that the opponent has applied for a patent for such other invention in the interval between the leaving of the provisional and complete specifications. (e) Want of novelty. (f) Prior publication.

The case is heard and decided by the Commissioner, from whose decision an appeal lies to the High Court or to the Supreme Court of the State in which the Patent Office is situated.

(iv.) *Single Patent for Cognate Inventions, etc.* The provisions of the Act relative to single patents for cognate inventions, patents of addition and revocation of patents, will be found in detail in previous issues of the Year Book. (See No. 6, p. 1163.)

(v.) *Compulsory Working and Licenses.* At any time not less than four years after the date of a patent, and not less than two years after the 13th December, 1911, any person may apply to the High Court or the Supreme Court of the State in which the Patent Office is situated for an order declaring that the patent article or process is not manufactured or carried on to an adequate extent in the Commonwealth. From and after the time when any such order may take effect, the patent is not deemed to be infringed by the manufacture or carrying on in the Commonwealth of the patented article or process, or by the vending within the Commonwealth of the patented article made within the Commonwealth. By Act No. 13 of 1916, section 87(a), which provides for compulsory working, has been suspended during the continuance of the present war and for a period of six months thereafter, and in reckoning the said period of four years, the period during which section 87(a) is suspended shall not be taken into account. Any person interested may, after the expiration of two years from the granting of the patent, present a petition to the Commissioner alleging that the reasonable requirements of the public with respect to a patented invention have not been satisfied and praying for the grant of a compulsory license or, in the alternative, for the revocation of a patent. If the parties do not come to an arrangement between themselves, the Commissioner, on being satisfied that a *prima*

*facie* case has been made out, must refer the petition to the High Court or the Supreme Court of the State in which the Patent Office is situated. If the Commissioner is not satisfied that a *prima facie* case has been made out he may dismiss the petition.

(vi.) *Restoration and Surrender of Patents, and Contracts and Proceedings.* The provisions of the Act with reference to restoration and surrender of patents, contracts, etc., are given in detail in previous issues of the Year Book. (See No. 6, p. 1164.)

(vii.) *International Protection of Patents.* The Patents Act contains provisions under which the international arrangements for the protection of patents contained in the Imperial Acts can be made applicable to the Commonwealth by order of the King-in-Council. Applicants for patents, subject to the country in which first application is made being a party to the arrangement, are now, if they apply in Australia within twelve months of their first foreign application, entitled to make application for patents for their inventions in priority to other applicants, and such patents have the same date as the date of the first application abroad. Corresponding arrangements have also been made by the Commonwealth with New Zealand.

(viii.) *Patent Attorneys.* Any person on passing the prescribed examination, and on paying a fee of £5, may be registered by the Commissioner as a patent attorney. A solicitor may practise as a patent attorney without passing the prescribed examination and without being registered as a patent attorney. No person may describe himself as a patent attorney, or as a patent agent, or as an agent for obtaining patents unless he is registered or entitled to practise as a patent attorney.

(ix.) *Patent Office Publications.* Complete specifications are printed shortly after they become open to public inspection by advertisement of acceptance, or under Section 121 of the Act, provided the complete specification is not accepted and advertised. Each specification is open to public inspection. A number of publications, of which a list may be found in the Australian Official Journal of Patents, is on sale at the Government Printing Office, Melbourne.

The *Australian Official Journal of Patents* is issued weekly, and contains lists of applications and proceedings, with illustrated notes of accepted complete specifications. A supplementary annual volume contains statistics, indexes to names of persons concerned, classified indexes to subject matter of applications lodged, and a numerical index to proceedings on Commonwealth applications which have been advertised during the year; there are also names and number indexes to proceedings on State applications.

(x.) *Applications Filed, Provisional Specifications Accepted, and Letters Patent Sealed.* The numbers of individual inventions in respect of which applications were filed in the States or Commonwealth during each year from 1910 to 1917 inclusive are shewn in the following table. The number of applications accompanied by provisional specifications and the number of patents sealed in respect of applications made in each year are also shewn.

**PATENTS.—APPLICATIONS FILED AND LETTERS PATENT SEALED IN THE  
COMMONWEALTH, 1910 to 1917.**

Year	...	...	...	...	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.
No. of applications	...	...	...	...	3,605	3,497	4,071	4,163	3,436	3,117	2,906	3,244
No. of applications accompanied by provisional specifications	...	...	...	...	2,294	2,290	2,273	2,626	2,232	2,133	1,980	2,186
Letters patent sealed during each year	...	...	...	...	1,552	2,027	1,502	1,495	2,098	1,279	1,162	1,218

(xi.) *Revenue of Patent Office.* The revenue of the Commonwealth Patent Office for each year from 1910 to the end of the year 1917 is shewn in the subjoined table:—

## REVENUE OF COMMONWEALTH PATENT OFFICE, 1910 to 1917.

Particulars.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.
	£	£	£	£	£	£	£	£
Fees collected under—								
States Patents Acts ...	1,940	768	118	50	16	19	15	11
Patents Acts 1903-10 ...	17,042	19,640	18,542	18,800	21,575	15,463	14,055	15,629
Receipts from publications ...	208	237	305	283	274	298	294	281
Petty receipts ...	33	48	50	49	81	6	4	...
Total ...	19,223	20,693	19,015	19,182	21,946	15,786	14,368	15,921

3. **Trade Marks.**—The remarks made concerning the unification of the patent system of the Commonwealth apply equally to trade marks. Under the Trade Marks Act 1905, which came into force on the 2nd July, 1906, the Commissioner of Patents is appointed to act also as “Registrar of Trade Marks.” The Trade Marks Act of 1905 was amended by the Patents, Trade Marks, and Designs Act 1910, assented to on the 14th November, 1910, and by the Trade Marks Act 1912, and is now cited as The Trade Marks Act 1905-1912. The principal objects of the amending Act were to enlarge the scope of marks capable of registration, and repeal the provisions of the Act of 1905 relating to the “Workers Trade Mark,” the provisions regarding which were held to be unconstitutional. Special provisions for the registration of a “Commonwealth Trade Mark” are contained in the Act of 1905 and are applicable to all goods included in or specified by a resolution passed by both Houses of Parliament that in their opinion the conditions as to remuneration of labour in connection with their manufacture are fair and reasonable.

(i.) *Essential Particulars of Trade Marks.*—

Section 15. “A registrable trade mark shall consist of essential particulars with or without additional matter.”

Section 16. (1) “A registrable trade mark must contain or consist of at least one of the following essential particulars:—(a) The name of a company, individual, or firm represented in a special or particular manner; (b) the signature of the applicant for registration or some predecessor in his business; (c) an invented word or invented words; (d) a word or words having no direct reference to the character or quality of the goods, and not being according to its signification a geographical name or a surname; (e) any other distinctive mark, but a name, signature, or word or words, other than such as fall within the descriptions in the above paragraphs (a), (b), (c) and (d) shall not, except by order of the Registrar, Law Officer, or Court, be deemed a distinctive mark.”

(2) “For the purposes of this section ‘distinctive’ means adapted to distinguish goods of the proprietor of the trade mark from those of other persons.”

(3) “In determining whether a trade mark is so adapted, the Registrar, Law Officer, or Court may, in the case of a trade mark in actual use, take into consideration the extent to which such user has rendered such trade mark in fact distinctive for the goods with respect to which it is registered or proposed to be registered.”

(ii.) *State Registrations.* State registrations cease to be in force at the expiration of fourteen years from the date of the Commonwealth Act, or at the time when, under the State Trade Marks Act, the trade mark would, if after the commencement of the Commonwealth Act no fee for the continuance of its registration were paid, first become liable to removal from the register, whichever first happens. It is also provided that no fee shall be receivable nor shall any act be done after the commencement of the Commonwealth Act for the continuance of the registration of a trade mark under a State Act.

Commonwealth registration of a State registered mark may be effected, and the fact of its registration in a State prior to the coming into force of the Commonwealth Act may entitle the registered proprietor in the State to Commonwealth registration, notwithstanding the existence of defects which might be grounds for refusal of an application for the registration of a new trade mark.

(iii.) *Duration of Registration and General Provisions.* The registration of a trade mark is for a period of fourteen years, but may be renewed from time to time. International and intercolonial arrangements for the mutual protection of trade marks may be made in a manner similar to that provided for the protection of patents. In this regard Australia has become a party to the International Convention for the protection of industrial property. Registration may be opposed by any person lodging a notice of opposition at the Trade Marks Office within three months after the advertisement of the application, or such further time, not exceeding three months, as may, on application made within the first three months, be allowed.

(iv.) *Publications.* The *Australian Official Journal of Trade Marks* is issued weekly, and contains lists of applications and proceedings, with representations of marks (when accepted) sought to be registered. Lists of registered owners of designs and the subject matter of applications are also published weekly in this Journal. Indexes to names of applicants and subject matter of applications are compiled and are on sale.

4. **Designs.**—The Designs Act of 1906 came into operation on the 1st January, 1907, being subsequently amended by the Patents, Designs and Trade Marks Act 1910, and the Designs Act 1912, and is now cited as the Designs Act 1906-12. Under this Act a Commonwealth Designs Office has been established and the Commissioner of Patents appointed "Registrar of Designs."

(i.) *Registration.* Any new and original design which has not been published in Australia before the lodging of an application for its registration may be registered in respect of all or any of the articles enumerated in the classification contained in the regulations, which comprise jewellery, paperhangings, carpets, floor-cloths, lace, hosiery, millinery, wearing apparel, textile fabrics, bookbinding, and articles composed wholly or chiefly of a variety of solid substances. A separate application must be made in respect of each class in which the owner of the design desires it to be registered. After an application for the registration of a design has been lodged, the design may be published and used without prejudice to the validity of the registration.

(ii.) *Duration of Copyright in Designs.* The registration takes effect as from the date of the lodging of the application, and, subject to the provisions of the Act, remains in force for a period of five years from that date. Provision is made by the amending Act of 1912 for an extension of the period of registration to fifteen years, subject to applications for extensions being made and the prescribed fees paid before the expiration of five and ten years respectively. The owner of a registered design must within two years after registration substantially use the design, or cause it to be used in Australia, and if he fails to do so the copyright ceases. If, however, such design is used in any manufacture abroad, the above period is limited to six months.

(iii.) *General.* The Act also contains provisions regarding the remedies for infringement of designs and the rectification of the register. Arrangements for the international and intercolonial protection of copyright in designs were made by the same proclamation referred to above with regard to patents and trade marks. The owner of a registered design must cause each article to which the design is applied to be marked before delivery for sale with the prescribed mark to denote that the design is registered.

5. **Applications for Trade Marks and Designs.**—The following table gives particulars of applications for trade marks and designs received and registered under the Commonwealth Acts from 1909 to 1917 inclusive :—

**APPLICATIONS FOR TRADE MARKS AND DESIGNS RECEIVED AND REGISTERED  
UNDER COMMONWEALTH ACTS, 1909 to 1917.**

Applications.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.
<b>RECEIVED.</b>									
Trade Marks	1,688	1,729	1,977	1,803	1,957	1,619	1,526	1,636	1,532
Designs ...	187	186	203	235	301	267	326	298	266
<b>REGISTERED.</b>									
Trade Marks	1,455	1,190	1,323	1,389	1,468	1,272	1,015	1,126	1,033
Designs ...	166	160	180	211	281	220	266	253	236

The following table shows the revenue of the Trade Mark and Design Office during the years 1914 to 1917:—

**REVENUE OF TRADE MARK AND DESIGN OFFICE, 1914 to 1917.**

Particulars.	1914.			1915.			1916.			1917.		
	Trade Marks.	Desig's	Publi- cations	Trade Marks.	Desig's	Publi- cations	Trade Marks.	Desig's	Publi- cations	Trade Marks.	Desig's	Publi- cations
	£	£	£	£	£	£	£	£	£	£	£	£
Fees collected under State Acts ...	42	...	...	32	...	...	21	...	...	28	...	...
Fees collected under Commonwealth Acts ...	4,610	266	102	4,024	329	95	4,280	354	89	3,978	312	94
<b>Total ...</b>	<b>4,652</b>	<b>266</b>	<b>102</b>	<b>4,056</b>	<b>329</b>	<b>95</b>	<b>4,301</b>	<b>354</b>	<b>89</b>	<b>4,006</b>	<b>312</b>	<b>94</b>

**6. Enemy Patents and Trade Marks.**—On the outbreak of the European war the Commonwealth Government deemed it advisable to extend the powers of the Governor-General of the Commonwealth during the continuance of hostilities with reference to patents, trade marks, and designs, the property of alien enemies.

Acts Nos. 15 and 16 of 1914 were accordingly passed by the Commonwealth Parliament in November, 1914, giving the Governor-General power to make regulations as follows:—

- (a) for avoiding or suspending in whole or in part any patent or license the person entitled to the benefit of which is the subject of any State at war with the King;
- (b) for avoiding or suspending the registration, and all or any rights conferred by the registration, of any trade mark or design the proprietor whereof is a subject as aforesaid;
- (c) for avoiding or suspending any application made by any such person under any of the Acts referred to in this section;
- (d) for enabling the Minister to grant, in favour of persons other than such persons as aforesaid, on such terms and conditions, and either for the whole term of the patent or registration or for such less period, as the Minister thinks fit, licenses to make, use, exercise or vend patented inventions and registered designs so liable to avoidance or suspension as aforesaid; and
- (e) for extending the time within which any act or thing may or is required to be done under any of the Acts referred to in this section.

The regulations prescribed by the Governor-General for giving effect to the provisions of these Acts may be found in the official journals issued by the Commonwealth Commissioner of Patents (see *Australian Official Journal of Patents*, vol. 20, No. 47 *et seq.*).

To the end of June, 1918, twenty-one applications had been made under these Acts to avoid or suspend patents, of which six were granted and three refused, the others being withdrawn. Thirty-five applications were also made to avoid or suspend trade marks, of which eight were granted and subsequently revoked, twenty-two refused, three withdrawn, and two are still pending. Five hundred and fifty-eight Commonwealth and 319 State registrations of trade marks, and all rights conferred by such registrations, also have been suspended in favour of the Minister of State for Trade and Customs. Two Commonwealth trade marks—"Lysol" and "Aspirin"—were avoided from the 23rd July, 1917, ten patents were suspended in favour of the Minister of State for the Navy, and in addition, four patents were suspended in favour of the Engineer-in-Chief for the Commonwealth Railways and such person or persons as may be licensed by the Minister.

**7. Publication of Inventions during Present State of War.**—Under the War Precautions (Patents) Regulations 1916 (Statutory Rules 140), any person intending to apply for a patent outside the Commonwealth must give notice of his intention to the Commissioner of Patents, who, if he is of the opinion that it is obvious no reason exists for prohibiting publication in the country in which it is intended to make application for a patent, shall notify the applicant that the desired application may be made. In all other cases the Commissioner will refer the notice to the Patents Inquiry Board. If the Board is of opinion that the invention is one which would be of assistance to the enemy, or its publication outside the Commonwealth would be detrimental to the interests of the Commonwealth, the applicant is directed not to publish or communicate his invention.

Under the same regulations every application for a patent, except applications the publication of which in the opinion of the Commissioner of Patents would obviously not be detrimental to the Commonwealth, shall also be referred to the Board. If the Board determines that an invention might be of assistance to the enemy, the applicant shall not, during the continuance of the present state of war, proceed with his application either within or beyond the Commonwealth. It is also forbidden in respect to all applications for patent made since 30th October, 1917, for the applicant to publish his invention either within or outside the Commonwealth until he has received permission from the Commissioner of Patents.

Provision is also made under these regulations for the Attorney-General to give permission in writing for an application to be made abroad under the terms of the International Convention in respect of any invention the subject of an application in the Commonwealth lodged prior to the 12th January, 1916.

### § 3. Copyright.

**1. Copyright Legislation.**—Prior to the 1st January, 1907, the date on which the Commonwealth Copyright Act of 1905 came into operation, the subject of copyright was regulated by the laws of the separate States. In general, the State laws were under the like provisions of the Imperial Copyright law, including the law of 1842 and the earlier unrepealed or subsequent Acts, the most important of which were the Colonial Copyright Act 1847 and the International Copyright Act of 1886. They were also generally included under British international relations embracing the Berne-Paris provisions of the International Copyright Union and the reciprocal relations with the United

States of America, with the exception that in the Austria-Hungary Treaty, New South Wales and Tasmania were not parties, because they did not exercise the right of ratification especially reserved to individual colonies.

Though the Commonwealth Copyright Act of 1905 took the place of the State Copyright Acts formerly in force, it left unaffected existing rights under the State laws, but transferred the administration thereof to the Commonwealth. Provision was also made under the law of 1905 for the registration of International and State copyrights. The principal features of the Act of 1905 are given in previous issues of the Year Book (see No. 9, p. 1119). This Act was repealed by the Copyright Act of 1912, which was assented to and became operative on the 20th November, 1912. Subject to modifications relating to procedure and remedies, the Commonwealth law of 1912 adopted the British Copyright Act of 1911, and declared the latter law to be in force within the Commonwealth as from the 1st July, 1912. The British Act extends throughout the whole of His Majesty's dominions, but it is not to be in force in a self-governing dominion unless enacted by the legislature thereof either in full or with modifications relating exclusively to procedure and remedies necessary to adapt the Act to the circumstances of the dominion.

Under the Commonwealth Law of 1912, copyright subsists in "every original literary, dramatic, musical, and artistic work," first published within parts of His Majesty's dominions to which the British Copyright Act of 1911 extends, and in the case of an unpublished work, the author of which was "at the date of the making of the work," a British subject or a resident domiciled within the aforesaid parts of His Majesty's dominions (or under protection through international copyright provisions). The old Common Law right is abrogated by the Act of 1912, and all copyright property is now the creature of statute from the date when it takes shape, either written in words or in some other material form.

Copyright is defined to mean the sole right to produce or reproduce the work or any substantial part thereof in any material form whatever, or any translation thereof, to publish, perform, or deliver the work in public, to dramatise or novelise it, and in the case of a literary, dramatic or musical work, to make any record, cinematograph film or other contrivance by means of which it may be mechanically performed or delivered, or to authorise any of such acts. Architectural works of art are included as to design, but not as to process or methods of construction.

By an Order-in-Council made by the Government of the Commonwealth of Australia, simultaneously with the issue of a Proclamation by the President of the United States of America on the 15th March, 1918, reciprocal protection was extended to citizens of the respective countries in regard to unpublished literary, dramatic, musical and artistic works in which copyright existed on the date mentioned, or may thereafter subsist under the laws of these countries. The enjoyment of the rights conferred by the Order-in-Council shall be subject to the accomplishment of the conditions and formalities prescribed by law of the United States of America, or, in other words, registration at the Library of Congress, Washington, D.C., U.S.A., is made a condition precedent to the protection of Australian copyright property in the United States of America.

Further details relative to the provisions of the Act of 1912 will be found in previous issues of the Year Book (see No. 8, p. 1066).

**2. Applications for Copyright.**—The following table gives particulars of copyright applications received and registered under the Commonwealth Acts from 1913 to 1917 inclusive:—

APPLICATIONS FOR COPYRIGHT RECEIVED AND REGISTERED UNDER  
COMMONWEALTH ACTS, 1913 to 1917.

Year.	Copyrights.			
	Literary.	Artistic.	International and State.	Total.
APPLICATIONS RECEIVED.				
1913	505	340	...	845
1914	743	219	5	967
1915	740	237	4	981
1916	845	180	...	1,025
1917	835	141	...	976

APPLICATIONS REGISTERED.				
1913	429	245	...	674
1914	693	184	5	882
1915	742	222	3	967
1916	797	168	...	965
1917	793	140	...	933

The revenue from copyright for the years 1913, 1914, 1915, 1916 and 1917, was £169, £239, £252, £268, and £256 respectively.

§ 4. Old-age and Invalid Pensions.

1. General.—In previous issues an account has been given of the introduction of the old-age pension system into Australasia. Then followed a detailed description of the Commonwealth Invalid and Old-age Pensions Act of 1908, which became operative on 1st July, 1909. It is not intended to repeat these sections in the present publication; enquirers into the subject are referred to previous issues (3-8) of the Official Year Book. In view, however, of the interest attaching to the working of the system, the series of statistical tables which have hitherto been published will be continued.

Details of the several States as at 30th June, 1917, are as follows :—

COMMONWEALTH OLD-AGE PENSIONS, YEAR ENDED 30th JUNE, 1917.

	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'w'lth.
Claims examined during year ending 30th June, 1917	4,457	3,331	1,526	1,042	530	443	11,329
Claims rejected	714	199	303	81	39	10	1,346
Claims granted	3,743	3,132	1,223	961	491	433	9,983
Transfers from other States	413	357	135	153	90	58	1,206
Existing 30th June, 1916	33,249	28,446	12,049	9,318	4,199	4,522	91,783
	37,405	31,935	13,407	10,432	4,780	5,013	102,972
To be deducted—							
Deaths	2,727	2,192	808	689	259	303	6,978
Cancellations, and transfers to other States	797	679	286	303	168	144	2,322
	3,464	2,871	1,094	997	427	447	9,300
Old-age Pensions existing on 30th June, 1917	33,941	29,064	12,313	9,435	4,353	4,566	93,672



2. **Sexes of Old-age Pensioners.**—Of the 93,672 persons in receipt of pensions at 30th June, 1917, 38,063 (or 41 per cent.) were males, and 55,609 (or 59 per cent.) were females. Details for the several States are as follows:—

**SEXES OF PENSIONERS, 30th JUNE, 1917.**

State.	Males.	Females.	Total.	*Masculinity.
New South Wales ... ..	14,591	19,350	33,941	75.41
Victoria ... ..	10,931	18,183	29,064	60.28
Queensland ... ..	5,514	6,799	12,313	81.10
South Australia ... ..	3,530	5,905	9,435	59.79
Western Australia ... ..	1,917	2,436	4,353	78.70
Tasmania ... ..	1,580	2,986	4,566	52.91
Total ... ..	38,063	55,609	93,672	68.45

\* Number of males to each 100 females.

3. **Ages and Conjugal Condition of Old-age Pensioners Granted Pensions during 1916-17.**—The recorded ages of the 9983 persons to whom pensions were granted during the year 1916-17 varied considerably, ranging from 2109 at age 60 to two at age 93. Particulars for quinquennial age-groups are as follows:—

**AGES AND CONJUGAL CONDITION OF PERSONS GRANTED PENSIONS DURING 1916-17.**

Age at Admission.	Males.				Females.				Grand Total.
	Single.	Married.	Widowed	Total.	Single.	Married.	Widowed	Total.	
60-64 ... ..	54	160	61	275	386	1,833	1,645	3,864	4,139
65-69 ... ..	619	1,414	560	2,593	82	483	484	1,049	3,642
70-74 ... ..	136	435	219	790	35	231	317	583	1,373
75-79 ... ..	52	143	93	288	12	70	153	235	523
80-84 ... ..	18	33	53	104	8	12	101	121	225
85-89 ... ..	5	9	23	37	3	1	26	30	67
Above 90 ... ..	...	1	7	8	...	1	5	6	14
Total ... ..	884	2,195	1,016	4,095	526	2,631	2,731	5,888	9,983

4. **Commonwealth Claims for Invalid Pensions.**—The situation as at 30th June, 1917, was as follows:—

**COMMONWEALTH INVALID PENSIONS.—YEAR ENDED 30th JUNE, 1917.**

	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	Total C'wealth.
Claims examined during year ending 30th June, 1917 ...	2,281	2,193	919	466	313	331	6,503
Claims rejected ... ..	434	445	251	86	83	62	1,361
Claims granted ... ..	1,847	1,748	668	380	230	269	5,142
Transfers from other States ...	73	70	23	29	7	28	230
Existing 30th June, 1916 ...	9,356	6,869	2,954	1,675	1,057	1,528	23,439
	11,276	8,687	3,645	2,084	1,294	1,825	28,811
Deduct—							
Deaths ... ..	362	538	206	136	67	95	1,404
Cancellations and Transfers to other States ...	111	228	90	95	27	75	626
	473	766	296	231	94	170	2,030
Invalid Pensions existing 30th June, 1917 ... ..	10,803	7,921	3,349	1,853	1,200	1,655	26,781

5. **Sexes of Invalid Pensioners.**—Of the 26,781 persons in receipt of an invalid pension on 30th June, 1917, 12,904, or 48.18 per cent., were males, and 13,877, or 51.82 per cent., were females. Details for the several States are as follows :—

**SEXES OF INVALID PENSIONERS, 30th JUNE, 1917.**

State.	Males.	Females.	Total.	*Masculinity.
New South Wales ... ..	5,106	5,697	10,803	89.63
Victoria ... ..	3,812	4,109	7,921	92.77
Queensland ... ..	1,798	1,551	3,349	115.93
South Australia ... ..	759	1,094	1,853	69.38
Western Australia ... ..	668	532	1,200	125.56
Tasmania ... ..	761	894	1,655	85.12
Commonwealth ... ..	12,904	13,877	26,781	92.99

\* Number of males per 100 females.

6. **Ages and Conjugal Condition of Persons Granted Invalid Pensions during 1916-17.**—The recorded ages of the 5142 persons who received invalid pensions in the period under review varied from 16 to 90. The following table gives particulars for those up to age 20 and in decennial age-groups after age 20 :—

**AGE AND CONJUGAL CONDITION OF PERSONS GRANTED INVALID PENSIONS IN 1916-17.**

Age at Admission	Males.				Females.				Grand Total.
	Single.	Married.	Widowed	Total.	Single.	Married.	Widowed	Total.	
16-19 ... ..	162	...	...	162	184	...	...	184	346
20-29 ... ..	158	54	...	212	254	12	7	273	485
30-39 ... ..	143	169	6	318	197	47	37	281	599
40-49 ... ..	142	280	21	443	201	124	143	468	911
50-59 ... ..	243	552	102	897	246	328	421	995	1,892
60-69 ... ..	174	381	105	660	28	51	90	169	829
70-79 ... ..	12	13	10	35	3	12	25	40	75
80 and over ... ..	...	1	1	2	...	...	3	3	5
Total ... ..	1,034	1,450	245	2,729	1,113	574	726	2,413	5,142

7. **Cost of Administration.**—Under the State régime the cost of administration differed considerably in the several States, and for 1908-9 represented in New South Wales 4.17 per cent. of the amount actually paid in pensions. In Victoria for the same year the corresponding percentage was 0.70. During the year 1916-17 the total cost to the Commonwealth of administering the Old-age and Invalid Pensions Department was £54,393, or about 1.5 per cent. of the amount actually paid in pensions. Details concerning the cost of administration for 1916-17 are as follows :—

	£
Salaries ... ..	12,196
Temporary assistance ... ..	3,232
Services of magistrates, registrars, clerks of courts, and police ... ..	3,701
Commission to Postmaster-General's Dept., at 12s. 6d. per £100 paid ... ..	21,076
Postage and telegrams ... ..	4,555
Other expenses ... ..	9,633
Total ... ..	£54,393

The actual sum disbursed in Old-age and Invalid Pensions in the financial year 1916-17, apart from the cost of administration, was £3,518,987.

8. **Liability Undertaken in Granting Old-age Pensions.**—As an indication of the extent of the responsibility which an old-age pension scheme involves, it may be mentioned that in connection with the evidence tendered to the Commonwealth Commission on Old-age Pensions a computation was made of the total liability in respect of accrued pensions which the Commonwealth would have incurred if, at 31st March, 1901, the date of the Census, 39 per cent. of the persons aged sixty-five and upwards were entitled to pensions of ten shillings per week. The present value at that date of the liability so computed was £10,415,820. (See Minutes of Evidence of Royal Commission on Old-age Pensions, p. 80.)

The following table gives detailed statistical information concerning the working of the Act since 1st July, 1909:—

#### INVALID AND OLD-AGE PENSIONS.—SUMMARY 1910-17.

Financial Year ended 30th June.	Number of Pensioners.			Amount Paid in Pensions.	Amount Paid to Asylums for Maintenance of Pensioners.	Total Payment to Pensioners and Asylums.	Cost of Administration.	Cost of Administration per £100 paid to Pensioners and Asylums.	Average Fortnightly Pension on last day of Financial Year
	Old-Age.	Invalid.	Total.						
				£	£	£	£	£ s. d.	s. d.
1910	65,492	...	65,492	1,497,330	155	1,497,485	37,146	2 9 7 %	19 1
1911	75,502	7,451	82,953	1,868,648	2,592	1,871,240	39,244	2 1 11 %	19 1
1912	79,071	10,763	89,834	2,148,034	7,447	2,155,481	41,794	1 18 9 %	19 0
1913	82,943	13,739	96,682	2,289,048	13,287	2,302,335	44,523	1 18 8 %	19 6
1914	87,780	16,865	104,645	2,577,965	14,236	2,592,201	47,015	1 16 3 %	19 5
1915	90,892	20,417	111,309	2,704,309	27,630	2,731,939	48,018	1 15 4 %	19 5
1916	91,783	23,439	115,222	2,859,766	31,831	2,891,597	44,401	1 10 9 %	19 4
1917	93,672	26,781	120,453	3,518,987	35,148	3,554,135	54,393	1 10 7 %	24 3

9. **Pensions Act, 1916.**—On 30th September, 1916, an Act was assented to, which amended the original Pensions Act in a very important particular. It had been felt for some time that, owing to the increased cost of living, the grant of ten shillings a week was insufficient. Accordingly amendments were made in the case of the two important sections, twenty-four and twenty-six.

Section 24 of the Invalid and Old-age Pensions Act 1908-1912 originally enacted that the pension "shall not exceed the rate of twenty-six pounds per annum in any event, nor shall it be at such a rate as will make the pensioner's income, together with pension, exceed fifty-two pounds per annum." It was amended (a) by omitting the words "twenty-six pounds," and inserting in their stead the words "thirty-two pounds ten shillings": and (b) by omitting the words "fifty-two pounds" and inserting in their stead the words "fifty-eight pounds ten shillings."

Section 26 originally enacted that if an applicant for pension was in receipt of board or lodging, the actual or estimated value or cost of this should be counted as income, to an extent not exceeding five shillings per week. This has now been amended by omitting the words "five shillings" and inserting in their stead the words "seven shillings and sixpence."

The effect of these amendments is to increase the liability under the heading of Invalid and Old-Age Pensions by about twenty-five per cent. This is the cause of the great increase in the amount paid in pensions in 1916-17. It is also the cause of the fall in the percentage cost of the administration.

### § 5. Maternity Allowance.

The Federal Parliament, during the session of 1912, passed an Act (assented to on 10th October, 1912) providing under certain circumstances for the payment of maternity allowances. The scope and main provisions of the Act will be gathered from the following sections and sub-sections, given in full :—

4. "Subject to this Act, there shall be payable out of the Consolidated Revenue Fund, which is hereby appropriated accordingly, a maternity allowance of Five pounds to every woman who, after the commencement of this Act, gives birth to a child, either in Australia or on board a ship proceeding from one port in the Commonwealth or a Territory of the Commonwealth to another port in the Commonwealth or a Territory of the Commonwealth."
5. (1) "A maternity allowance shall be payable in respect of each occasion on which a birth occurs, and the child is born alive, or is a viable child, but only one allowance shall be payable in cases where more than one child is born at one birth."
6. (1) "The maternity allowance shall be payable only to women who are inhabitants of the Commonwealth or who intend to settle therein."
- (2) "Women who are Asiatics or are aboriginal natives of Australia, Papua, or the islands of the Pacific, shall not be paid a maternity allowance."

The following table gives a statistical summary of the most important points in connection with the working of the Maternity Allowance Act since 10th October, 1912, when the first payments were made :—

**COMMONWEALTH MATERNITY ALLOWANCE.—SUMMARY, 1913-17.**

Year ended 30th June.	Claims Paid.	Claims Rejected.	Amount Paid.	Cost of Administration.	Cost per £100 of allowance paid.
			£	£	£ s. d.
1913 (a)	82,475	619	412,375	6,547	1 11 9
1914	134,998	709	674,990	10,281	1 10 6
1915	138,855	640	694,275	12,900	1 17 2
1916	131,943	504	659,715	12,165	1 16 11
1917	132,407	459	662,035	13,735	2 1 6

(a) From 10th October, 1912.

### § 6. War Pensions.

1. **General.**—An Act for the provision of war pensions was passed in 1914 and amended in 1915 and 1916. Its scope can be determined by the following extract from Section 3. "Upon the death or incapacity of any member of the forces whose death or incapacity results, or has resulted, from his employment in connection with warlike operations in which His Majesty is, or has since the commencement of the present state of war been engaged, the Commonwealth shall, subject to this Act, be liable to pay to the member or his dependents, or both, as the case may be, pensions in accordance with this Act."

A very great latitude is allowed in the interpretation of the word "dependents." It includes the wife or widow of any member of the forces; the widowed mother of an unmarried son; the children (including ex-nuptial children); the parents, if without adequate means of support; and such other members of his family as were wholly or in part dependent upon his earnings at any time within twelve months prior to his enlistment.

**2. Rates of Pension:** (1) The rates of pension payable under this Act are as follows:—

(A) In case of the death of a member of the Forces :

- (i.) To the widow, or the widowed mother of an unmarried son, the rate specified in column two of the first schedule opposite to the rate of pay of the member, and
- (ii.) to each child, the rate of twenty shillings per fortnight for the first child, fifteen shillings per fortnight for the second child, and ten shillings per fortnight for the third and each subsequent child, and
- (iii.) to the other dependents such rates as are assessed by the Commissioner or the Deputy-Commissioner, as the case may be, but not exceeding in the aggregate the rate specified in column two of the first schedule opposite to the rate of pay of the member plus two pounds per fortnight :

Provided that the maximum rate of pension payable to any one dependent of a member shall not in any case exceed the amount specified in column two of the first schedule opposite to the rate of pay of the member.

(B) In case of the total incapacity of a member of the Forces :—

- (i.) To the member the rate specified in column three of the first schedule, opposite to the rate of pay of the member, and
- (ii.) to the wife of a member fifty per centum of that rate, and
- (iii.) to each child of the member, the rate of twenty shillings per fortnight for the first child, fifteen shillings per fortnight for the second child, and ten shillings per fortnight for the third and each subsequent child, and
- (iv.) to the other dependents such rates as are assessed by the Commissioner, or the Deputy-Commissioner, as the case may be, but not exceeding in the aggregate the rate specified in column two of the first schedule, opposite to the rate of pay to the member, plus two pounds per fortnight. Provided that the maximum rate of pension payable to any one dependent of a member shall not in any case exceed the amount specified in column two of the first schedule, opposite to the rate of pay of the member.

(C) In case of the partial incapacity of a member of the Forces, such less rates than those referred to in paragraph (B) as are assessed by Commissioner, or the Deputy-Commissioner, as the case may be, having regard to the nature and probable duration of the incapacity.

(2) Notwithstanding anything contained in this section, the maximum rate of pension payable to a child, both of whose parents are dead, shall be :—

- (i.) up to ten years of age, one pound per fortnight ;
- (ii.) from ten to fourteen, twenty-five shillings per fortnight ; and
- (iii.) from fourteen to sixteen years of age, thirty shillings per fortnight.

(3) The amount of pension granted and payable to a member of the Forces shall not be reduced within the period of six months from the date of the commencement of the pension.

4) Any member of the Forces who is incapacitated by reason of a disability specified in the second schedule, shall receive the rate of pension shewn opposite to the description of the disability in that schedule.

- (5) If a member of the Forces who is unmarried or whose wife is either dead or a permanent invalid is incapacitated to an extent which necessitates the constant services of an attendant, and the member has not the means to pay for such services, the rate of his pension may be increased by a sum not exceeding one pound per fortnight.

3. **Schedules of Pensions.**—The schedules to which reference has been made in the preceding section are as follows :—

### THE FIRST SCHEDULE.

Scale of pensions payable to widow on death of a member of the Forces, or to a member upon total incapacity:

Rate of Pay of the Member per Day.		Pension Payable to Widow on Death of Member.		Pension Payable to Member upon Total Incapacity.	
s. d.		£ s. d.		£ s. d.	
6 0	and under	2 0 0	per fortnight	3 0 0	per fortnight
7 0	"	2 3 0	"	3 2 0	"
9 0	"	2 9 0	"	3 6 0	"
10 0	"	2 12 3	"	3 8 0	"
10 6	"	2 13 9	"	3 9 0	"
11 6	"	2 16 0	"	3 11 0	"
12 0	"	2 17 3	"	3 12 0	"
13 0	"	2 19 6	"	3 14 0	"
17 6	"	3 10 0	"	4 0 0	"
22 6	"	3 17 6	"	4 5 0	"
30 0	"	4 9 0	"	4 15 0	"
37 6	"	5 0 9	"	5 5 0	"
45 0	"	5 12 3	"	5 15 0	"
50 0	and upwards	6 0 0	"	6 0 0	"

### THE SECOND SCHEDULE.

Description of Disability.				Rate of Pension Payable.	
Loss of leg or foot	...	...	...	The maximum rate for six months, there- after three-fourths of the maximum rate.	
Loss of hand or arm	...	...	...	The maximum rate for six months, there- after three-fourths of the maximum rate.	
Loss of one eye	...	...	...	Half of the maximum rate.	
Loss of both legs	...	...	...	The maximum rate.	
" " arms	...	...	...		
" " feet	...	...	...		
" " hands	...	...	...		
" " eyes	...	...	...		
Loss of arm and leg	...	...	...		
Loss of hand and foot	...	...	...		
Loss of one eye, together with loss of leg, foot, hand, or arm	...	...	...		

4. Number of Pensioners, 1917.—The following statistical tables shew the position of affairs as at the 30th June, 1917 :—

TABLE I.—PARTICULARS OF WAR PENSIONERS, AT 30th JUNE, 1917.

Classification.	In respect of Deceased Members.	In respect of Incapacitated Members.	Total.
(i.) Dependents of members of the Forces—			
(a) Wives or widows ... ..	3,420	4,288	7,708
(b) Children under 16 years ... ..	5,581	6,880	11,961
(c) Children over 16 years' ... ..	83	42	125
(d) Widowed mothers of unmarried members ... ..	2,570	136	2,706
(e) Other mothers of members ... ..	4,654	312	4,966
(f) Fathers ... ..	869	13	882
(g) Brothers and sisters ... ..	602	37	639
(h) Others ... ..	232	56	288
Total number of dependents of members of the Forces ... ..	18,011	11,264	29,275
(ii.) Incapacitated members of the Forces ... ..	...	15,916	15,916
Total number of war pensioners at 30th June, 1917 ... ..	18,011	27,180	45,191

TABLE II.—NUMBER OF WAR PENSIONERS ON 30th JUNE, 1917.

Where Paid.	Incapacitated Members of the Forces.	Dependents of		Total.
		Deceased Members.	Incapacitated Members.	
South Africa ... ..	9	20	5	34
New Zealand ... ..	40	91	20	151
New South Wales ... ..	5,543	4,772	3,407	13,722
Victoria ... ..	5,233	5,840	4,112	15,185
Queensland ... ..	1,671	1,432	965	4,068
South Australia ... ..	1,357	1,658	1,257	4,272
Western Australia ... ..	1,169	1,760	725	3,654
Tasmania ... ..	568	895	451	1,914
London ... ..	326	1,543	322	2,191
	15,916	18,011	11,264	45,191

TABLE III.—EXPENDITURE IN 1916-17.

	£		£
New South Wales ... ..	359,349	Tasmania ... ..	43,422
Victoria ... ..	449,446	London ... ..	62,743
Queensland ... ..	108,314		
South Australia ... ..	114,685		
Western Australia ... ..	74,026		
		Total ... ..	(a) £1,212,632

(a) Including £647 for South Africa.

The cost of administration was £10,187 in 1915-16, and £38,190 in 1916-17.

## § 7. Local Option.

1. **General.**—The principles of local option as to the sale of fermented and spirituous liquors have been applied in all the States of the Commonwealth. The last State to adopt these principles was Western Australia, where provision was made for a system of local option by the Licensing Act 1911. Since the outbreak of war in 1914, various enactments have been made in several of the States relative to the control of the liquor traffic. While not in any way pertaining to the scheme of local option, these measures are referred to in this section, as possibly, if not probably, affecting future public opinion in regard to this matter.

2. **New South Wales.**—(i.) *Local Option.* The Act in force relating to local option in this State is the Liquor Act 1912, which consolidated the laws relating to publicans, brewers and other persons engaged in the brewing, manufacture or sale of liquor. The local option vote is taken in every electorate on the day fixed for the poll therein at each general election, but special provision was made under The Liquor Amendment Act 1916 to suspend the taking of the local option vote at the general election in 1917. The option with regard to licenses extends to public-houses, wineshops, and clubs, and the persons entitled to vote are those entered on the Parliamentary electoral rolls. The first local option vote under the Liquor (Amendment) Act of 1905 was taken at the general election in 1907, and the second at the election in 1910, while the vote in 1913 was taken under the Liquor Act 1912. In 1907, when the first local option vote was taken, there were 3023 hotels in existence; of this number 293 were ordered to be closed at varying dates. At the election of 1910 there were 2869 hotels, and of these, 28 were ordered to be closed. At the 1913 election there were 2719 hotels, of which 23 were closed before July, 1917. The number of wine licenses at the time of the vote of 1907 was 633, of which 46 were abolished. In 1910, 5 out of 565 were closed, and in 1913, 7 out of 514 were ordered to be closed. The resolutions to be submitted, and the effects of such resolutions, if carried, are given *in extenso* in previous issues of this book. The following statement shews the number of electorates in which each of the resolutions was carried:—

### NEW SOUTH WALES.—EFFECTS OF LOCAL OPTION VOTES, 1907, 1910, and 1913.

Particulars.	General Election, 1907.		General Election, 1910.		General Election, 1913.	
	Elector-ates.	Votes.	Elector-ates.	Votes.	Elector-ates.	Votes.
<i>Results in favour of—</i>						
(a) Continuance ...	25	209,384	76	324,973	75	380,707
(b) Reduction ...	65	75,706	14	38,856	15	44,453
(c) No license ...	Nil	178,580	Nil	212,889	Nil	245,202

(ii.) *Liquor Referendum Act 1916.* On 17th February, 1916, a proclamation was issued, in terms of the War Precautions Act, by the Minister for Defence, ordering that licensed premises be closed at 6 p.m. in the County of Cumberland, and within a radius of five miles from any military camp; a week later the closing hour was varied from 6 to 8 p.m. Subsequently the Liquor Referendum Act 1916 was passed in the State Parliament to decide by referendum the hour of closing for premises licensed under the Liquor Act 1912. At the referendum the electors were enabled to record votes in order of preference for each hour from 6 to 11 p.m. inclusively. The count of the first preference



votes resulted in a large majority for 6 o'clock, and from 21st July, 1916, all licensed premises and registered clubs in New South Wales have been closed at that hour. This determination prevails during the currency of the war and for a period not exceeding six months thereafter.

3. *Victoria.*—The Acts dealing with the subject of local option as to the sale of fermented and spirituous liquors, and with the compulsory closing of hotels in this State, are the Licensing Act 1915, No. 2683, and the Licensing Act 1916, No. 2855. Other Acts, now repealed, which dealt with the subject, were the Licensing Acts 1876, 1885, 1888, 1890, 1906, and 1907.

Part XIII. of the Act of 1915 relates to the subject of local option. Under this part the local option provisions were to come into operation at the first general election subsequent to 1st January, 1917. The 1916 Act provides that the first local option polls are not to be held till the second general election following on the above date. In the meantime, the Licenses Reduction Board, which by the same Act has been constituted the Licensing Court for the whole State, is empowered to continue the work of closing hotels, which it has carried out since 1906.

The reduction of a statutory number of hotels for each licensing district disappeared with the old provisions relating to closing, and the Court is now authorised to close hotels in any licensing district, as if resolution B (Reduction), under the local option provisions, had been carried in each district. This allows of a reduction proportionate to the existing number, the maximum closing not to exceed one-fourth. Power has also been given to accept the surrender of any victualler's license irrespective of the number otherwise closed. A greater number must not be closed than can be compensated, and the old limitation, that hotels licensed after 1886 were not entitled to compensation, has been removed.

(i.) *The Licenses Reduction Board.* This Board was established by the 1906 Act, with power to reduce the number of licensed victuallers' premises, up to December, 1916, in districts where there were more than the statutory number of licenses. It had also the duty of fixing and awarding compensation to the owners of licenses of the closed hotels. The compensation was provided by an annual percentage fee of 3 per cent. on all liquor purchased by licensed victuallers. The compensation fund obtained in this manner has risen from £48,233 in 1907, to £63,623 in 1916, which was the highest figure reached. In 1916, with the restricted hours of trading, the amount received was £60,396. The licensing fund, which was distinct from the compensation fund, was protected by a provision that the remaining hotels, by a *pro rata* assessment, had to make up annually the amount of the license fees lost by the closing of hotels; the license fees for hotels were of varying amounts, based on the annual municipal value of the premises, ranging from £5 to £50, in four classes, viz., £5, £15, £25, £50. By the 1916 Act, this system of fixed fees was abolished, as was also the *pro rata* assessment of lost fees and the 3 per cent. compensation fees. The two funds referred to above were merged into one, and a system of percentage fees was applied to all licenses for the sale of liquor in the State, whether wholesale or retail, and the amount received is paid into one fund.

Under this system, all vendors of liquor pay in proportion to the benefit they derive from the license. The amount charged the wholesale trade is four per cent. on the cost of all liquors sold to non-licensed persons, no charge being made on sales to other licensed vendors. The retail trade is charged six per cent. on liquor purchases, except the holders of Australian wine licenses, who are charged four per cent.

During 1916, prior to the passing of the above Act, a number of owners and licensees, fearing that no provision would exist for the acceptance of surrenders when Part XIII. came into operation, took advantage of the existing provisions. Consequently, the number closed, 143, was in excess of the average, and the 1917 compensation funds had to be drawn upon to the extent of £18,087. The closings of 1917 had to be

somewhat curtailed for this reason. The maximum compensation payable is still governed by the trading results and the rents of the years 1903-6, though a concession was made in the Amending Act by which licensees are entitled to be compensated on a three years' tenure, if they are in possession of a lease of that extent when deprived of their license. Under the 1916 Act 83 hotels have been closed and £49,608 awarded as compensation. The total number of hotels closed up to the 31st December, 1917, was 1137, and the compensation paid, £590,459, or an average of £520 per hotel. The following table shows particulars of the operations of the Board and Court up to the 31st December, 1917 :—

**VICTORIA.—OPERATIONS OF LICENSES REDUCTION BOARD, 31st DECEMBER, 1917.**

Particulars.	Licenses in December, 1906.			Hotels Deprived of Licenses	Compensation Awarded.		Hotels Surrendered.	Compensation Awarded.	
	Number in Existence.	Statutory Number.	* Number in Excess.		Owner.	Licensee.		Owner.	Licensee.
Metropolitan & Suburban Country ...	1,020 2,428	877 1,622	401 967	291 553	£ 217,913 119,693	£ 42,763 32,580	19 281†	£ 5,973 72,643	£ 1,149 7,746
Total ...	3,448	2,499	1,368	844	337,605	75,343	293	78,616	8,895

\* In some districts the number of hotels was below the statutory number; in these districts the total number of hotels less than the statutory number was 418. † Including 2 Roadside licenses.

(ii.) *Early Closing of Hotels.* Consequent on the war, an Act (No. 2584) was passed, and came into operation on 6th July, 1915, restricting the hours for the sale of intoxicating liquors, the restriction being limited to the duration of the war. Sale was permitted only between the hours of 9 a.m. and 9.30 p.m. By a subsequent Act (No. 2776), tenants of licensed premises were given the right to apply to the Licenses Reduction Board to adjust the rents of their premises. The hours of trading in the evening were further restricted as from 25th October, 1916—six o'clock being fixed as the time of closing.

The provisions of the Rent Adjustment Act were extended so as to enable the Board to deal with applications for reductions of rent arising from fresh restrictions. Between 300 and 400 additional applications were received, the amounts involved being substantial.

Special provision was made in the 1916 Act for the granting of victuallers' licenses in the Mallee. Power was given to proclaim areas containing 500 resident electors, when petitions signed by a majority of the residents were lodged, and where the licensing court, after enquiring, recommended this course.

On the proclamation of an area, a poll of the electors is to be taken at which one-third of those enrolled must vote. A majority of those voting decides whether a license is to issue or not. These hotels must be at least twelve miles apart, except at Mildura, where special provision is made for the issue of three licenses. Under these provisions six areas have been proclaimed, in four of which polls were taken and resulted in favour of license.

4. *Queensland.*—The local option clauses of the Liquor Acts of 1912-1914 provide for the following :—

- (i.) The conditions under which new licenses may be granted until the completion of the business of the Licensing Court in April, 1916.
- (ii.) The continuance of the local option clauses of the Licensing Act of 1885 until the 31st December, 1916.
- (iii.) The institution of a new scheme, under which electors from and after the year 1917 will have the opportunity of voting every three years on the question of reduction or increase of licenses.

(i.) *New Licenses.* With regard to the granting of "new licenses" from the 1st April, 1913, and until the completion of the business of the Licensing Court in April, 1916, it is provided that no new licensed victualler's or wine seller's or provisional licenses shall be granted, unless at a local option vote of the electors of the local option area in which the premises or proposed premises are situated, a resolution "that new licenses shall be granted in this local option area" has been carried.

If the resolution is carried, the Court may, but need not, grant applications; but if the resolution is not carried, the Court shall not grant any application during the said years in the said local option areas.

The Acts of 1912 and 1914 provided that a local option vote following on an application for a license might be taken in any of the years 1913, 1914, 1915, and 1916 in a local option area, but having been taken once should not be taken again during those years in the same local option area. During 1913 a vote was taken in 10 districts on the resolution "that new licenses be granted." In five of these the resolution was carried, the other five districts declaring against any increase in the number of licenses. In 1914, 16 districts voted on the same resolution, in 11 of which it was carried, while in 1915, 16 districts also voted, the resolution being carried in 10 cases.

(ii.) *Continuance of Present System until 1917.* With the exception of the third resolution, viz., "that no new licenses be granted," the local option provisions of the Licensing Act of 1885 remain in full force and effect until the 31st December, 1916, with certain modifications and additions. These will be found fully described in previous issues of the Year Book (see No. 6, p. 1177).

(iii.) *General Local Option.* The first vote may be taken in the year 1917, either on the same day as the election of senators takes place, or if no senate election is held in 1917 before the 30th September, then on a day to be appointed by the Governor-in-Council, and the vote will be by ballot.

The vote will be taken on the request of one-tenth of the number of electors in an area, which is defined in the request, and such area may be:—(a) an electoral district, (b) an electoral division of an electoral district or (c) a group of two or more divisions of an electoral district, provided that the whole of such local option area is wholly comprised within one and the same electoral district.

There must be a separate request for each resolution on which a vote is required to be taken.

The resolutions on which a vote may be taken are:—(a) reduction by one-fourth of the existing number, (b) further reduction by one-fourth of the existing number, (c) further reduction by one-fourth of the existing number, (d) prohibition, and (e) new licenses.

On the 5th May, 1917, 57 polls were taken, 55 being on the question of reduction (resolution a) and 2 being on the question of increase (resolution e). Reduction was carried in only four local option areas—Biggenden, Ipswich, Maryborough, and Toowoong. Increase was carried in both local option areas, i.e., Atherton and Cloncurry.

In previous issues of the Year Book (see No. 6, p. 1178) will be found fuller reference to the effect of the carrying of any of these resolutions.

**5. South Australia.**—In this State the subject of local option is now regulated by Part VIII. of the Licensing Act 1917.

Under this Act, each electoral district for the House of Assembly is constituted a local option district, and each electoral district may be divided into local option districts by proclamation of the Governor. A quorum consisting of 500 electors, or one-tenth of the total number of electors, whichever be the smaller number, in any district may petition to the Governor for a local option poll. The persons entitled to vote at the poll are those whose names appear on the electoral roll and who reside in the local option district.

The resolutions to be submitted, together with the effects such resolutions would have, are set out in detail in previous issues of the Year Book (see No. 6, p. 1179).

(i.) *Local Option Poll.* On the 2nd April, 1910, local option polls were taken under the Act of 1908 in twenty-four districts; the electors in the remaining nine local option districts did not petition for polls. A resolution that the number of licenses be reduced, was carried in only one district, Wallaroo; in the remaining 23 districts a resolution that the number of licenses be not increased or reduced, was carried. At the General Election of the House of Assembly held on the 10th February, 1912, no local option polls were held in any local option district. On the 27th March, 1915, (the same day as the Parliamentary elections), a local option poll was taken in the Flinders Southern (Port Lincoln) local option district, when the resolution "that the number of licenses be not increased or reduced" was carried. There have been no further polls in any of the districts up to the end of 1917.

(ii.) *Early Closing of Hotels.* On the 27th March, 1915, a referendum was held as to the hour for the closing of bar-rooms in licensed premises. Out of a total of 178,362 votes cast, 100,418 were cast in favour of closing bar-rooms at 6 p.m., those in favour of closing at 11 p.m. being 61,362. Electors had the choice of voting for hours other than the two mentioned, but the votes so cast were comparatively few.

(iii.) *Re-proclamation of Districts.* Local option districts were re-proclaimed on the 29th November, 1917, the districts, which number 35, being given in the Government Gazette of the same date.

6. **Western Australia.**—The law relating to local option in Western Australia is contained in Part V. (sections 75 to 86) of the Licensing Act 1911, which was assented to on 16th February, 1911, and came into force on the 7th April following. Prior to the passing of this Act there was no provision for any system of local option in Western Australia.

The resolutions to be submitted under the above-mentioned Act and the effect such resolutions would have, are given in detail in previous issues of the Year Book (see No. 6, p. 1180).

The first vote under the Act of 1911 was taken on 26th April, 1911, the main question being confined (as prescribed by the Act when the vote is taken prior to 1920) to a resolution "that the number of licenses be increased," the only other questions submitted being those of State control of new publicans' general licenses and State management throughout all licensing districts.

The following table shows the result of this local option poll:—

**WESTERN AUSTRALIA.—RETURN SHEWING THE RESULT OF LOCAL OPTION  
POLL OF 26th APRIL, 1911.**

Result of Local Option Poll.		Do you vote that all new Publicans' General Licenses be held by the State.		Are you in favor of State Management throughout all Licensing Districts.	
Votes given in favor of the number of Licenses in the various districts being increased.	Votes given in favor of the number of Licenses in the various districts not being increased.	Yes.	No.	Yes.	No.
4,554	17,623	27,007	14,387	26,631	14,944

Under the 1911 Act a second poll was due on 26th April, 1914, but an amending Act was passed in December, 1913, continuing the present conditions until April, 1915. Subsequently, by an amending Act of 1915, the present conditions were further continued until 1918, and by an Act assented on the 7th August, 1917, the poll was postponed until 30th September, 1918, with a proviso that on a resolution passed by both Houses of Parliament the present conditions shall continue for a further period as may be expressed in such resolution.

(i.) *Regulation of Liquor Traffic during the War.* In 1914, upon the outbreak of war, a special Act was passed in Western Australia which empowered the Government by Proclamation to restrict or prohibit the sale or supply of liquor within any licensing district, or any portion of a licensing district, and rendered it an offence for any person, licensed or unlicensed, to offer for sale or supply liquor contrary to such Proclamation, with a penalty of £200, or imprisonment for twelve months.

Provision was also made to limit and fix the hours during which licensed premises in any district, or portion thereof, might be open for the sale of liquor. The Act also contained the necessary powers to enforce the provisions thereof, including power to search without warrant and seize any liquor where there was reason to believe that such liquor existed in a prohibited area.

The Act was passed solely as an emergency measure, and so far there has been no necessity to issue any Proclamation thereunder.

In 1915, a further Act was passed *regulating the sale of liquors*. That Act divided the State into four districts—Metropolitan, Goldfields, Agricultural, and North-West, the latter being exempt from the provisions of the Act.

The main feature, as regards the Metropolitan and Agricultural districts, was to reduce the period during which licensed premises could be open for the sale of liquor to the hours between 9 a.m. and 9 p.m., the previous period being between the hours of 6 a.m. and 11 p.m.

As regards the Goldfields district, the Act provided that upon receipt of a requisition signed by not less than 2000 electors in the district, a referendum should be held.

In submitting the referendum, each elector had one vote, and the voting paper set out the hours of 6 o'clock, 7 o'clock, 8 o'clock, 9 o'clock, 10 o'clock, and 11 o'clock p.m. as alternative hours of closing. Each elector was to indicate his vote by marking an "X" opposite the hour which he desired to have fixed as the hour of closing. If the majority of votes were cast in favour of any particular hour, that hour was to be certified as being the result of the vote and proclaimed as the hour of closing. If there was no majority, then the votes cast for the earliest hour were to be transferred to the next later hour, and so on until a majority was thus obtained, when such majority would have the same effect as if the votes were originally given in favour of the hour to which they had been transferred, and such hour would be proclaimed the hour of closing.

A petition signed by the necessary number of electors was duly received, and a referendum was taken on the 24th May, 1916, the result of the poll being that the majority of all votes cast was in favour of the hour of 11 o'clock p.m. being fixed as the hour of closing.

The hour of 11 o'clock p.m. was the same as the hour originally fixed in the Licensing Act, and the result of the referendum therefore left the hour of closing the same, in so far as the goldfields district was concerned, as existed prior thereto.

7. *Tasmania.*—In this State the subject of local option is dealt with in Part VI. (sections 72 to 84) of the Licensing Act 1902, as subsequently amended by section 8 of the Licensing Act 1908, which later Act, however, does not come into full operation until the first of January, 1917. Other Acts which formerly dealt with the subject, but are now repealed, are the Licensing Acts 1889-1890, the Inn Keepers Relief Act 1894, and the Licensing Act Amendment Act 1898. Under the Act of 1902, opposition to the grant of a license may be made (i.) by any resident ratepayer, (ii.) by petition of ratepayers resident in the neighbourhood, or (iii.) by local option poll.

The conditions under which applications may be made to the Licensing Bench, opposing the granting of licenses, are set out in detail in previous issues of the Year Book. (See No. 6, p. 1181.)

(i.) *Local Option Poll.* Any number of ratepayers not less than seven, resident in the neighbourhood of the house in respect of which a provisional certificate or an hotel license has been applied for, may require, by petition lodged with the Clerk of Petty Sessions, that a poll of the ratepayers resident in the neighbourhood be taken upon

the question whether such provisional certificate be granted or not. If a majority of the votes taken be against the granting of the certificate the Licensing Bench must refuse to grant it.

Particulars as to operations under Part VI. of the Act are not available.

(ii.) *Early Closing of Licensed Premises.* A referendum on the question of the closing time for the sale and supply of liquor on licensed premises (6 Geo. V., No. 63) was taken on the 25th March, 1916, when 42,713 votes were cast in favour of closing at six o'clock p.m., against 26,153 votes in favour of ten o'clock, and 3951 votes for other hours. The majority in favour of closing at six o'clock over all other hours was 12,609, and the Licensing Act (No. 2) of 1916 gives effect to the wishes of the electors.

## § 8. Preferential Voting.

In previous issues of the Year Book, a description in detail has been given of the systems of preferential voting now in force in the States of Victoria, Queensland, Western Australia and Tasmania. It is not intended to repeat the description in the present issue.

## § 9. Valuation of Commonwealth Production.

The want of uniformity in methods of compilation and presentation of Australian statistics renders it an extremely difficult task to make anything like a satisfactory valuation of the various elements of production. At present there is so little accurate statistical knowledge regarding such industries as forestry, fisheries, poultry, and bee-farming, that any valuation of the production therefrom can only be regarded as the roughest approximation. As a matter of fact, complete information as to value of production in all States is available in regard to the mining industry alone, and even in this case adjustments have to be made before the returns are strictly comparable. Careful estimates have been made in connection with the value of production from the agricultural and pastoral industries, which, it is believed, in the main give fairly accurate results. In the case of manufactures, prior to 1909, five of the States collected statistics of the value of production, while for the sixth State, Tasmania, an estimate has been prepared which it is believed gives a fair approximation. The returns given in the following table are fuller and more approximate than those which have been given previously, and the returns collected in 1909 and subsequent years may be taken as substantially correct. The table hereunder shews the approximate value of the production from all industries during the years 1909 to 1916 :—

ESTIMATED VALUE OF PRODUCTION FROM INDUSTRIES, 1909 to 1916.

Year.	Agriculture.	Pastoral.	Dairy, Poultry, & Bee-farming.	Forestry and Fisheries.	Mining.	Manufacturing.*	Total.
	£1000.	£1000.	£1000.	£1000.	£1000.	£1000.	£1000.
1909 ...	41,056	50,864	15,064	4,462	23,039	39,713	174,198
1910 ...	39,752	56,993	17,387	4,789	23,215	45,598	187,734
1911 ...	38,774	50,725	19,107	5,728	23,480	50,767	188,581
1912 ...	45,754	51,615	20,230	6,432	25,629	57,022	206,732
1913 ...	46,162	57,866	20,341	6,338	25,808	61,586	218,101
1914 ...	36,052	60,265	21,562	6,419	22,265	62,922	209,485
1915 ...	73,769	65,607	21,156	5,777	22,397	62,853	251,589
1916 ...	60,207	89,940	26,949	5,505	23,621	64,205	270,427

\* These amounts differ from those given in Section XIII., Manufacturing Industries, owing to certain products which are there included having been included in Dairy Farming and Forestry in this table.

The total production from all industries during 1916 was £270,427,000, equal to an average of £55 2s. 2d. per inhabitant.

In Year Books Nos. 1 to 5 will be found the value of production in each State at decennial intervals since 1871, and for the year 1909. Details for individual States are not available for subsequent years owing to discontinuance by the Customs Department of the collection of statistics of interstate trade.

## § 10. Norfolk Island.

**1. Area, Location, etc.**—Norfolk Island, discovered by Captain Cook in 1774, is situated in latitude 29° 3' 45" south, longitude 167° 58' 6" east. Its total area is 8528 acres, the island being about 5 miles long and 3 miles wide. From Sydney it is distant 930 miles, and from New Zealand 400 miles. The coast line is 20 miles, and its form that of an irregular ellipse. Except on the south-west, inaccessible cliffs rise from the water's edge. The climate is equable, the temperature ranging between 56° and 82° with a mean of 68°. The average annual rainfall is 53 inches. It has been said that the salubrious climate coupled with the beauty of its land and sea scapes should combine to render Norfolk Island "the Madeira of the Pacific."

**2. Settlement.**—The first colonisation, in 1788, was by Lieutenant King, who in H.M.S. *Sirius* established a small penal station as a branch settlement of that at Port Jackson. The settlement was abandoned in 1806, and thence for 20 years its chief use was as a whaling station and place of call for British warships.

From 1826 to 1855 it was again made a penal station. In 1844 it was annexed to Van Diemen's Land (Tasmania).

The descendants of the *Bounty* mutineers having become too numerous to subsist on Pitcairn Island were removed thence to Norfolk Island in 1856. The new community numbered 193—94 males and 99 females—and were the descendants of British sailors and Tahitian women.

In 1856 the island was severed from Tasmania, and created a distinct and separate settlement under the jurisdiction of New South Wales. In 1897 it was made a dependency under the Governor of that Colony, and was administered by the Chief Secretary's Department through a resident Chief Magistrate, in whom was vested the executive government of the settlement, and the penal supervision of its affairs. In 1913, however, a Bill was passed by the Federal Parliament providing for the taking over of the island as a territory of the Commonwealth. The Act came into force on 1st July, 1914, and the island is now administered by the Department of Home and Territories, Melbourne, through an Administrator and Chief Magistrate.

**3. Population and Live Stock.**—The population on 31st December, 1916, was 927, including 113 Melanesians being trained at the mission station. The latest returns of live stock shew that there are in the island 1735 cattle, 619 horses, 667 sheep, and 306 pigs. In addition there were about 6600 head of poultry.

**4. Production, Trade, etc.**—The soil throughout is rich, and is specially suitable for the cultivation of citrus fruits, bananas and (in parts) coffee. Various other sub-tropical fruits thrive. During 1916 the production of oranges was given as 21,000 bushels; lemons, 226,000 bushels; bananas, 265,000 dozen. About 147,000 bushels of guavas and small quantities of pineapples and passion fruit were also raised, as well as 27,000 lbs. of coffee. The island is visited annually by schools of whales, both of the sperm and hump-backed variety, and whaling was at one time an important industry, but in recent years it has been allowed to languish. In 1916-17 the imports were valued at £16,694. The exports were valued at £8868, the chief items being lemon peel, £3320; lemon juice, £2660;

fish, £1010; hides, £504; and seeds, £298. Nearly all the export trade was with the Commonwealth, only small amounts going to New Zealand and the South Sea Islands. There is little other production. A five-weekly steam service is maintained with Sydney; other communication is irregular. The "all red" cable from Great Britain *via* Vancouver, Fanning Island and Fiji, bifurcates at Norfolk Island, one line connecting with New Zealand, the other with Brisbane.

**5. Social Condition.**—Education is compulsory, but free of cost, and there is a public school under the N.S.W. Department of Public Instruction, with standards corresponding to the State public schools. The number of scholars enrolled on the 30th June, 1917, was 160 (73 boys and 87 girls). A mission station has for many years been in existence for the education and general training of Melanesians, mostly from the Santa Cruz and Solomon Islands.

The magistrate's court has criminal jurisdiction in all crimes except capital offences, civil jurisdiction in all matters, and authority to grant probate and letters of administration.

## § 11. Lord Howe Island.

**1. Area, Location, etc.**—Between Norfolk Island and the Australian coast is Lord Howe Island in latitude  $31^{\circ} 30'$  south; longitude  $159^{\circ} 5'$  east. It was discovered in 1788. The total area is 3220 acres, the island being seven miles in length and from one-half to one and three-quarter miles in width. It is distant 436 miles from Sydney, and in communication therewith by monthly steam service. The flora is varied and the vegetation luxuriant, with shady forests, principally of palms and banyans. The highest point is Mount Gower, 2840 feet. The climate is mild and the rainfall abundant, but on account of the rocky formation only about a tenth of the surface is suitable for cultivation.

**2. Settlement.**—The first settlement was by a small Maori party in 1853; afterwards a colony was settled from Sydney. Constitutionally, it is a dependency of New South Wales, and is included in the King division of the Sydney electorate. A Board of Control manages the affairs of the island and supervises the palm seed industry referred to hereunder.

**3. Population.**—The population at the Census of 3rd April, 1911, was 56 males, 49 females, total 105.

**4. Production, Trade, etc.**—The principal product is the seed of the native or *Kentia* palm. The lands belong to the Crown. The occupants pay no rent, and are tenants on sufferance.

## § 12. Interstate Conferences.

**1.** Reference to the various Interstate Conferences, held in 1914 and 1915, will be found on page 1081, Official Year Book No. 8. Considerations of space preclude their insertion in the present issue.

**2. Premiers' Conference, Adelaide, 1916.**—On the 22nd May, 1916, and following days, a conference of Premiers was held at Adelaide. The following is a summary of the more important resolutions adopted:—

(i.) *Uniform Federal and State Rolls.* The electoral officers having recommended that it is practicable and advisable to have uniformity in regard to the State and Commonwealth Rolls, the respective States be invited to take the necessary steps to give effect to the recommendation.



(ii.) *Employment of Persons of Enemy Origin.* It is not desirable that persons of enemy birth, other than those already in the State service who have given full and satisfactory proof of their loyalty to the British Empire, should be engaged for employment in any Government Department while suitable persons of British origin are available.

(iii.) *Support of Unemployed Persons of Enemy Birth.* The internment or other support of destitute persons of enemy birth should be a Commonwealth responsibility.

(iv.) *Collection of Commonwealth and State Income Tax, Land and Probate Duty by One Authority.* The Commonwealth Government and the Governments of the several States shall direct their leading taxation officers to meet at an early date and prepare a uniform scheme for—Income tax (rates excepted), land tax (rates excepted), probate duties (rates excepted).

The Conference reaffirmed the desirability of uniform valuation for Commonwealth and State purposes being adopted as early as practicable, and that the necessary legislative or administrative steps in that direction be taken by the States.

(v.) *Employment of Returned Soldiers after the War.—Settlement of Returned Soldiers on the Land.—Repatriation Appeal.—Emigration to Australia of ex-Service Men from the United Kingdom.* With the view to meeting and solving the difficulties likely to arise on the return of large bodies of men to Australia, a committee comprising one Minister from each State and one Minister to represent the Commonwealth be established to secure co-ordination in matters connected with the repatriation of soldiers. That it be a recommendation to the respective State Governments—

- (a) To treat (after the war) returned British soldiers in a manner similar to that in which returned Australian soldiers are treated.
- (b) To ask the British authorities to create a suitable organisation to co-operate with the Agents-General of the States in placing before returned British soldiers who contemplate emigrating from Great Britain the advantages accruing to them, and to Imperial interests, from their making their future homes in the Dominions, and to arrange for their immigration to the Australian States in such numbers and at such times as the respective State Governments are of opinion that such immigrants can be satisfactorily absorbed.

(vi.) *Securing Shipping for Overseas and Interstate Trade.*

- (1) *Re Export of Goods from Australia.* It would appear that present arrangements in this connection are satisfactory. If any State finds that cargoes of greater value to that State are being left whilst goods of lesser value are exported, it is suggested that representations might be made to the controlling body set up by the Federal authorities.
- (2) *Re Imports.* Where goods are urgently required by a State, and the freights available are being used for the carrying of other goods less urgently needed, it is submitted that the States might invite the Agents-General to meet and make representations to the authorities in Britain.
- (3) Should this course become necessary, the representations might be made in the first instance to the Commonwealth authorities and the co-operation of the High Commissioner sought.

(vii.) *British Council of Scientists.* The State Governments to have this matter permanently brought under their notice with a view to their—

- (1) Using all the means at their disposal of applying science to the development of their industries and their production.
- (2) Actively co-operating with the organisation being established by the Commonwealth Government.

(vii.) *Strategic Railways.*

- (a) Any proposed railway to be submitted in each State to the Railways Standing Committee, or the Public Works Committee, or such similar authority as any State or States may appoint for the purpose, together with such representatives as the Commonwealth Government may appoint.
- (b) That such committees or authorities in formulating their recommendations be requested to give consideration to the developmental possibilities of the proposed lines, and to make such recommendations as will meet the strategic and developmental needs of the States interested.
- (c) That where the interests of two or more States are concerned, combined meetings of the committees or authorities appointed should be held for the purpose of making a joint recommendation.

(ix.) *Transfer of State Powers to the Commonwealth.* With regard to the proposed transfer of certain powers to the Commonwealth, the States represented at this conference reaffirm the desirableness of giving effect to the agreement entered into between the Premiers and the Prime Minister at the conference held in Melbourne in November, 1915.

(x.) *Bulk Handling of Grain.* It is desirable that the States should co-operate in the adoption of bulk handling of grain.

(xi.) *Centralisation of Statistical Departments.* It is desirable that the statistical bureaux of the States of the Commonwealth should, so far as practicable, be amalgamated, and each State Government to give consideration to this question.

(xii.) *Periodical Conferences of Directors of Education.* It is desirable that periodical conferences of the Directors of Education be held.

(xiii.) *Teaching of Modern Languages.* The State Governments were urged to give greatly increased attention to the teaching of modern languages, particularly the French language, in the public schools of the States.

(xiv.) *Imperial Education Conference.* The Australian States should be well represented at the conference shortly to be held in Great Britain in regard to education and science.

**3. Premiers' Conference, Melbourne, 1916-1917.**—On 12th December, 1916, and following days, and again on 5th January, 1917, and following days, a conference of Premiers (with Ministers of Lands) was held at Melbourne. The following is a summary of the more important resolutions agreed to:—

(i.) *Marriage Facilities for Absent Soldiers.* The Commonwealth Government to be asked to take into consideration the question of marriage facilities for absent soldiers.

(ii.) *Preference to Soldiers.* Other things being equal, preference shall be given by the Governments to returned soldiers for any employment in their services.

(iii.) *Financial Provisions for the Settlement of Returned Soldiers on the Land.* The Commonwealth agreed to make, available for the calendar year 1917 a sum not exceeding £2,000,000, half the amount to be available up to 30th June, 1917.

Allocation: Queensland, £500,000; New South Wales, £500,000; Western Australia, £500,000; South Australia, £250,000; Victoria, £150,000; Tasmania, £100,000.

(iv.) *The Treatment of Soldiers and Sailors and the Dependents of Soldiers and Sailors.* That it be the business of the central Commonwealth authority to devise a substantially uniform system of dealing with returned soldiers and sailors and the dependents of soldiers and sailors on service, or of soldiers and sailors who have died as a result of service in respect of—

- (a) *Immediate Amelioration, i.e.,* the provision of means for meeting immediate cash necessities. This, either by supplementing the military or naval pay before discharge, or by sustenance after discharge until employment or remunerative occupation can be found.
- (b) *Care of the Totally Incapacitated:* To include housing where necessary.
- (c) *Training of the Partially Disabled for a Useful Vocation:* To include the provision and renewal of artificial limbs and other aids.
- (d) *Employment Generally.*
- (e) *Assistance Towards Permanent Re-establishment by:*
  - (1) Sustenance during the initial period of settlement on the land or establishment in other vocations.
  - (2) Small businesses where such deemed a desirable form of provision.
  - (3) Grants for tools of trade.
  - (4) Assistance towards house establishment—(a) loans for house building or purchase (to include the conversion of existing mortgages where terms onerous); (b) grants for furniture to a prescribed amount.
- (f) *Care of Dependents:* (a) of men who die; (b) of men on service.
- (g) The co-ordination of governmental and private efforts for the expansion of existing, and the promotion of new, industries to meet the demand for general and special employment.
- (h) The assembling and administration of funds.

The States to be asked to agree to a uniform scale of advances to soldiers and sailors desiring to build or purchase dwellings in certain areas, or to convert existing mortgages of an onerous character, the Commonwealth authority to advance 25 per cent. of the value, the sum so advanced by the Commonwealth authority not to exceed £75.

The States to be asked to co-operate in the development of large national enterprises calculated to provide employment for men who cannot be otherwise placed.

On all bodies concerned with the repatriation of men under the Commonwealth scheme, the representation of soldiers and sailors who have been on active service is desirable.

### § 13. Interstate Commission.

In accordance with the provisions of the Commonwealth Constitution Act (sections 101 to 104, see pages 31, 32) an Act providing for the appointment of the Commission was assented to on the 24th December, 1912. The personnel of the Commission was, however, not decided until the 11th August, 1913, when Messrs. A. B. Piddington, K.C. (Chief Commissioner), Hon. George Swinburne, and N. Lockyer, I.S.O., were appointed. On the 8th September, 1913, a request was received from the Executive Government of the Commonwealth that the Commission should make an investigation in regard to the Tariff. This investigation was made and in all 70 reports were issued in connection therewith. (*Vide* Official Year Book No. 9, p. 1134, and No. 10, p. 1140.)

In January, 1915, complaints were lodged with the Commission in respect to contravention of the provisions of the Constitution relating to trade and commerce. In this connection, the case of the Commonwealth of Australia v. The State of New South Wales and another was subsequently heard before the Commission, but on an appeal to the High Court against its decision it was held that under section 101 of the Constitution the Interstate Commission had not been given judicial powers.

On the 14th September, 1915, the Minister for Trade and Customs requested the Commission to furnish for the information of Parliament a report as to the new industries which, in its opinion, could with advantage be established in the Commonwealth, and in pursuance of this request such report was prepared and presented.

On the 7th March, 1916, the Commission was entrusted with an inquiry into the subject of British and Australian trade in the South Pacific, with the result that a report was furnished which deals with all factors affecting the progress of the island possessions in which Great Britain and Australia are interested.

On the 19th April, 1916, the Commission was invited by the Postmaster-General, on behalf of the Commonwealth and the several States, to act as arbitrator on the question of charges, etc., by the Railway Commissioners of the States for the carriage of mails. Subsequently sittings were held in this matter and decisions and awards made.

On the 4th August, 1917, the Prime Minister, as the result of complaints made to him, requested the Commission to inquire into the causes of increased prices of food, clothing, house rent, etc. This inquiry is now in progress, and interim reports are being presented as it proceeds. In connection with this investigation a regulation under the War Precautions Act was passed to permit each Commissioner to sit alone, and while so sitting to exercise all the powers of investigation conferred by the Interstate Commission Act of 1912.

The Chief Commissioner (Mr. A. B. Piddington, K.C.) is a member of the Commonwealth Advisory Council of Science and Industry. Mr. Commissioner Swinburne, who is also a member of the Commonwealth Advisory Council, is chairman of the Central Board of the Business Administration in connection with the Department of Defence.

Mr. Commissioner Lockyer was granted six months' leave from 15th October, 1917, for the purpose of complying with the desire of the Government that he should act temporarily as Comptroller and supervise the organisation of the Department which will administer the Australian Soldiers Repatriation Act. Mr. Stephen Mills, Comptroller-General, Department of Trade and Customs, was thereupon appointed a Deputy-Commissioner.

## § 14. Commonwealth Advisory Council of Science and Industry.

**1. General.** An account of the origin of the Advisory Council and the proceedings which led to its formation was given in Year Book No. 9 (p. 1135). The Advisory Council was appointed by order of the Governor-General in Council on the 16th March, 1916. Since that date certain additional appointments have been made, so that the council now consists of thirty-six members representative of both science and industry, and includes members from all the Australian States. It is a temporary body, designed to prepare the ground for a proposed permanent Institute of Science and Industry, and to exercise in a preliminary way the functions that will in future belong to the Institute. The chief of these functions are—

- “(i.) To consider and initiate scientific researches in connection with, or for the promotion of, primary or secondary industries in the Commonwealth”; and
- “(ii.) the collection of industrial scientific information and the formation of a Bureau for its dissemination amongst those engaged in industry.”

The Advisory Council itself has held only three meetings, viz., the inaugural meeting in April, 1916, and meetings in August, 1916, and July, 1917, called to receive reports and at which certain resolutions referred to below were passed. The work of the Council has been done by means of committees.

(i.) *The Executive Committee.* In accordance with instructions given by the then Acting Prime Minister, the Advisory Council at its first meeting elected an Executive committee of six members. Four additional members of the Executive have since been appointed. It was decided that the Prime Minister, or in his absence a Minister representing him, should be chairman of the Executive committee. In addition, it was decided that the chairman of each State committee should be *ex officio* a member of the Executive in order to keep the various committees in touch with one another. Such *ex officio* members were to receive copies of the Executive's minutes, and to keep in touch with it by correspondence, but were not expected to attend its ordinary meetings except when they happened to visit Melbourne. Similarly, the Executive receives copies of the minutes of each State committee. In addition a monthly summary of the work of the Executive is sent to all the members of each of the State committees.

(ii.) *The State Committees.*—At the first meeting of the Advisory Council it was decided that all of its members resident in any one State should form a local committee to co-operate with the Central Executive, especially in relation to questions involving local industries. By arrangement with the Commonwealth Government, certain additional members of the Advisory Council were added to the original list, so as to insure that there should be at least three such members available for the formation of each State committee, and it was decided that the chairman of each of these should be *ex officio* a member of the Executive, as explained above. Further procedure was formulated whereby any State committee could be strengthened by the appointment of associate members, representative of particular branches of science or industry. The associate members of the State committees are not members of the Advisory Council. A State committee has been established in each State.

It is to be noted that these so-called State committees are really local committees of the Federal organisation, their members and associate members being appointed by the Commonwealth Government. They must be clearly distinguished from certain "New Industries" and "Research" committees, which have originated as separate organisations in some of the States.

The chief functions of these State committees are to collect locally such information as may be required by the Executive, and to forward to the Executive such recommendations as local knowledge or local enquiries may suggest. They have no independent executive or financial powers, but they are an extremely important part of the business machinery.

**2. Summary of the Work of the Council.**—An account of the work carried out by the Council is given in the report of the Executive Committee up to the 30th June, 1917, but since that time considerable progress has been made. The work may be summarised under the following heads:—(i.) Preliminary work; (ii.) Systematic enquiries and investigations under the control of special and standing committees; (iii.) Conferences; (iv.) Miscellaneous.

(i.) *Preliminary Work.*—This work has been largely completed and comprises:—

1. A register or census—(a) of Australian industries, their distribution and importance; (b) of problems connected with them; (c) of the equipment and *personnel* of laboratories throughout the Commonwealth available for industrial scientific research; (d) of research work in actual progress in laboratories and at Government experimental farms; (e) of the facilities available for training scientific investigators.

2. The establishment of relations with other authorities, such as State Governments, scientific and technical departments, universities, technical colleges, scientific societies and associations, and committees representing the pastoral, agricultural, manufacturing, and other industries.
3. The encouragement and co-ordination of researches already in progress.

(ii.) *Special Committees.*—After making full enquiries and collecting all available information from reports and experts on any special question, the Executive has adopted the plan of appointing in each approved case a small special committee either to report further or to carry out actual experimental investigations. In forming these committees, special attention has been paid to securing adequate representation on the industrial as well as the scientific side. Twenty-six special committees have been appointed, and most of them have issued either interim or final reports. An account of the work carried out by these committees up to 30th June, 1917, appears in the last report of the Executive committee. In cases where the investigations have been completed or are sufficiently advanced for publication the results have been made available in the form of Bulletins, of which six have been published. Others are in course of preparation.

The following is a list of the special committees established up to April, 1918:—

- |   |  |
|---|--|
| 1. Ferro Alloys (Melbourne).                                | 15. Grass Tree Resin (Adelaide).   |
| 2. Mode of Occurrence of Gold in Quartz (Bendigo).          | 16. Development of Mechanical Cotton Picker (Brisbane).                  |
| 3. Alunite (Melbourne).                                     | 17. Utilisation of Phosphatic Rocks (Melbourne, Sydney and Perth).       |
| 4. Yeasts and Breadmaking (Sydney).                         | 18. Life History of the Cattle Tick (Brisbane).                          |
| 5. Damage by Insects to Grain in Store (Sydney).            | 19. Substitutes for Tin Plate (Melbourne).                               |
| 6. Purification of Damaged Wheat by Lime (Melbourne).       | 20. Commercial Utilisation of Kelp (Hobart).                             |
| 7. Electrical Sterilisation of Milk (Sydney).               | 21. Blow-fly Pest (Brisbane).  |
| 8. Tanning Methods (Sydney).                                | 22. Cold Storage Problems (Melbourne and Sydney).                        |
| 9. Utilisation of Mangrove Bark for Tanning (Brisbane).     | 23. Tuberculosis in Stock (Sydney, Melbourne, Adelaide, Perth & Hobart). |
| 10. Utilisation of Redgum for Tanning (Perth).              | 24. Bye-products of Wool-Scouring Industry (Geelong).                    |
| 11. Means of Transmission of Worm Nodule Parasite (Sydney). | 25. Nitrogen Requirements of Australia (Melbourne).                      |
| 12. Control of Sparrow Pest (Adelaide).                     | 26. Classification of Imports of Chemicals (Melbourne).                  |
| 13. Alcohol Fuel and Engines (Melbourne).                   |  |
| 14. Posidonia Fibre (Sydney).                               |  |

The members of these special committees act in a purely honorary capacity. Grants are made from the funds of the Advisory Council for the purchase of apparatus and equipment, and for the reimbursement of travelling and out-of-pocket expenses of the members of the committees whilst engaged on the work. In a number of cases salaried investigators and assistants are employed to give their whole time to the work under the direction of the several committees.

(iii.) *Standing and other Investigational Committees.*—In cases where the investigational work is of a permanent or prolonged nature, standing committees have been established. These include the Chemicals Committee, the committees inquiring into the marine biological economics of tropical Australia, the committee on the metric system and decimal coinage, the committee on native grasses and fodder plants, and the seed improvement committee which has been established to undertake the examination, comparison and classification of different varieties of cereals.

In addition certain investigations are being conducted in co-operation with committees established by other institutions, such as the Society of Chemical Industry of Victoria, the New South Wales Pastoral Committee for the blow-fly pest, and the Electrical Association of Australia.

In the case of the flax industry a committee has been established under the War Precautions Act to control and develop the industry. It is anticipated that the action taken by the Advisory Council in this matter alone will result during the present season in an increase in wealth produced, which will pay several times over for the total expenditure on the work of the Advisory Council from the day of its inception.

There are a number of other matters of importance under investigation which have not yet reached the stage at which they can be referred for systematic work by committees of experts, or which cannot be dealt with adequately until the permanent institute is established. These include paper-pulp, the prickly-pear pest, the control and eradication of certain weed-pests, destructive distillation of hardwoods, and other problems affecting forest products, ceramics, enamels and glazes, diseases of stock, the introduction of new plants, and cultivation in arid and semi-arid regions.

(iv.) *Conferences.*—An Interstate conference of agricultural scientists was held under the auspices of the Advisory Council towards the end of 1917, and has already been productive of results of much value. A conference was held in Brisbane in January, 1918, to devise a scheme of co-operative action between the Commonwealth and New South Wales and Queensland State Governments for the repression, with a view to the eradication, of the cattle-tick pest. The report of this conference has been published as Commonwealth Parliamentary Paper No. 40, 1917-18. The Advisory Council was represented at the Interstate Forestry Conference held at Perth in 1917, and as a result is taking action for the compilation of data on a uniform basis on the forest products of Australia. This is one of the first steps necessary towards the establishment of a Forest Products Laboratory. Other conferences are projected.

(v.) *Miscellaneous.*—A large number of inquiries and investigations of a varied nature have also been made. Some of these have reached finality, others are still receiving attention. They have arisen largely through inquiries made by persons engaged in industries for advice on scientific and technical matters and by inventors or discoverers of new processes or raw materials. At present they fall into no considered plan, but it is probable that many of those which are still receiving attention will find their place later in some co-ordinated scheme of work under the permanent institute.

**3. Publications and Supply of Information.** The Executive Committee has issued three reports dealing with its work, the last covering the period from its appointment up to 30th June, 1917. It has also begun to publish bulletins on the researches carried out under its auspices, those already issued or about to appear being :—

1. The cattle tick in Australia.
2. Worm nodules in cattle.
3. The alunite deposits of Australia and their utilisation.
4. The factors influencing gold deposition in the Bendigo goldfield.
5. Wheat storage problems (damaged grain and insect pests).
6. Power alcohol: Proposals for its production and utilisation in Australia.
7. Agricultural research in Australia.

Other publications issued by the Advisory Council are:—Memorandum on the Organisation of Scientific Research Institutions in the United States of America, by G. Lightfoot; Recent developments in the organisation of National Industrial Research

Institutions, by G. Lightfoot; The Economics of Trochus niloticus, by C. Hedley; The Physiography of Australian Rains, by Griffith Taylor; and Resolutions passed by the Advisory Council, July, 1917, together with report and recommendations on the organisation and work of the proposed permanent Institute of Science and Industry.

Information is being collected and indexed for the use of the Bureau of Information, which will be one of the sections of the proposed future institute. In connection with this work steps are being taken to prepare a catalogue of the scientific and technical periodicals in all the libraries of Australia.

A considerable amount of information on a great variety of topics has already been supplied to applicants from all parts of Australia.

**4. The Proposed Permanent Institute of Science and Industry.**—At its last meeting in July, 1917, the Advisory Council passed among others the following resolutions:—

1. That the Advisory Council is of the opinion that the immediate establishment of the permanent institute is a matter of urgency, as the financial and executive powers of the temporary organisation are wholly inadequate to the purposes in view.
2. That in the work of the future institute provision be made for co-operation between the Commonwealth and State Governments. It is suggested that this might be effected by arranging for the estimates of expenditure of the institute to be discussed at the Premiers' Annual Conference.

The Council also adopted a report and recommendations which had been drawn up by the Executive Committee, setting out the general features of the organisation and work of the proposed permanent Institute of Science and Industry. The recommendations are substantially the same as those drawn up by the committee of the conference held in January, 1916, which were published in Year Book No. 9. Certain modifications have, however, been introduced in the light of eighteen months' experience.

The principal recommendations are as follows:—

1. There should be established, under Act of Parliament, a Commonwealth Institute of Science and Industry.
2. The functions of the institute should be:—
  - (i.) To consider and initiate scientific researches in connection with, or for the promotion of primary or secondary industries in the Commonwealth.
  - (ii.) The collection of industrial scientific information, and the establishment of a Bureau of Information for the benefit of those engaged in industry.
  - (iii.) The establishment of National Laboratories.
  - (iv.) The general control and administration of such laboratories, when established.
  - (v.) To promote the immediate utilisation of existing institutions, whether Federal or State, for the purposes of industrial scientific research.
  - (vi.) To make recommendations from time to time for the establishment or development of special institutions or departments of existing institutions for the scientific study of problems affecting particular industries and trades.
  - (vii.) The establishment and award of industrial research studentships and fellowships, to include either travelling fellowships or fellowships attached to particular institutions.
  - (viii.) To draw attention to any new industries which might be profitably established in the Commonwealth.



- (ix.) To keep in close touch with, and seek the aid of all Commonwealth and State Government departments, learned and professional societies, and private enterprises concerned with, or interested in scientific industrial research.
- (x.) The co-ordination and direction of scientific investigation and of research and experimental work, with a view to the prevention of undesirable overlapping of effort.
- (xi.) To recommend grants by the Commonwealth Government in aid of pure scientific research in existing institutions.
- (xii.) To seek the co-operation of and to advise the educational authorities and scientific societies in the States, with a view to—
  - (a) Advancing the teaching of science in schools, technical colleges, and universities, where its teaching is determined by those authorities.
  - (b) The training of investigators in pure and applied science and of technical experts.
  - (c) The education of skilled artisans.
- (xiii.) To report annually and from time to time to Parliament.

### 3. *Constitution of Institute.*

- (i.) That for the purpose of controlling and administering the Institute three highly-qualified salaried directors, of whom one should be chairman, shall be appointed by the Governor-General in Council.
- (ii.) That of the three directors one should be an expert business and financial man, with ability in organisation; the other two should be chosen mainly on account of scientific attainments and wide experience.
- (iii.) That the tenure of the directors shall be fixed by the Act.
- (iv.) That an Advisory Council, representing Science and the principal Primary and Secondary Industries, be appointed in each State, who shall advise the directors in respect to the affairs of the Institute. That the directors shall meet each Advisory Council at least once a year.
- (v.) That the members of the Advisory Council in each State be appointed by the Governor-General in Council on the nomination of the State Government, and should receive fees for attendance.
- (vi.) That the staff of the Institute should be appointed by the Governor-General in Council on the recommendation of the directors, and should be exempted from the operation of the Public Service Act.

## § 15. Department of Chemistry, South Australia.\*

In South Australia, a Department of Chemistry was formed in 1916. The Department is largely engaged in the chemical investigation of local products and industries. A series of bulletins is in course of publication. Up to July, 1918, nine had been issued as follows:—

- No. 1.—*Paper Making*: An investigation into the prospects of establishing a paper-making industry in South Australia. A number of local materials have been investigated, and special attention is directed to straw as the most valuable available material, owing to the very large supply obtainable at a low price and near to the principal sea-ports.

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\* Information supplied by the Director, Dr. W. A. Hargreaves, D.Sc., M.A., F.I.C.

- No. 2.—*Potash*: Its economic sources in South Australia. Many local sources have been investigated, and wool scour is indicated as especially worthy of attention.  
*Lanoline*: A process for obtaining wool fat from locally scoured wool is described.
- No. 3.—*Cream of Tartar*: An examination of local grape products as sources of cream of tartar.
- No. 4.—*Marine Fibre*.—The fibrous portion of the leaf sheath of the sea plant *Posidonia Australis* grows abundantly in the shallow waters around the coasts of South Australia, and on other parts of the Australian Coast. This bulletin has been written to gather together and publish all the available information respecting it. The sum of £220,000 has already been spent in this industry, and a large amount of experimental work has been done in finding methods of collection and purification and market uses.
- No. 5.—*Boiler Waters*: Foaming and priming of boiler waters have been studied with a view to the suggestion of a remedy for these faults.
- No. 6.—*Grass Tree*: An investigation of the economic products of the species *Xanthorrhoea*. The trunk, leaves, and resin were examined. Special attention is drawn to the resin as similar to the high-priced resins, such as dragon's blood, benzoin, etc. It was found that 8 per cent. of para-oxybenzoic acid was readily obtained from the gum.
- No. 7.—*Gypsum and Plaster of Paris*: An investigation of the gypsum deposits in South Australia and their uses, with special reference to the manufacture of plaster of paris.
- No. 8.—*Alcohol as a Source of Power*: This bulletin discusses the use of alcohol as a motor fuel, details tests carried out under practical conditions, and indicates sources from which alcohol can be obtained.
- No. 9.—*Bonedust*: Its adulteration with Phosphate Rock. The results of this particular form of adulteration are dealt with, and a method of detection described.

## § 16. Standard Times in Australia.

Prior to 1895 the official time adopted in the several colonies was for most purposes the mean solar time of the capital city in each.

In November, 1892, an intercolonial conference of surveyors was held in Melbourne to consider, among other things, the advantages of introducing the system of standard time. In this system it was proposed to make the initial meridian that of Greenwich, and to change local standard time by whole hours according to the longitude east or west of that of Greenwich. Thus for every difference of 15° in longitude a change of one hour would be required. The minutes and seconds would then be identical everywhere.

The personnel of the conference was as follows:—New South Wales, Mr. E. Twynam, Chief Surveyor; Mr. R. M'Donald, District Surveyor, on behalf of the Government; Mr. G. H. Knibbs, President of the Institution of Surveyors; Mr. J. F. Furber, Secretary, on behalf of the Institution. Queensland: Mr. A. C. Gregory, M.L.C.; Mr. A. M'Dowall, Surveyor-General, on behalf of Government. South Australia: Mr. G. W. Goyder, Surveyor-General; Sir (then Mr.) C. Todd, Postmaster-General, on behalf of the Government; Mr. William Cummins and Mr. J. L. Packard, Vice-President

and Secretary respectively of the Institute. Victoria: Mr. R. L. J. Ellery, Government Astronomer, and Chairman of Board of Examiners for Land Surveyors; Mr. J. M. Coane, one of the examiners; Mr. T. N. Fowler, President of the Institute; Mr. Stuart Murray, of the Victorian Water Supply Department, on behalf of the Institute. Western Australia: Mr. J. S. Brooking, Deputy Surveyor-General, President of Board of Examiners, and Vice-President of the Institute, on behalf of both Government and Institute; and New Zealand, Mr. A. O. N. O'Donahoo, Surveyor-General. No representative from Tasmania attended the conference, but a report to it was sent by Mr. E. A. Counsell, at that time Deputy Surveyor-General for Tasmania. This report dealt with the general business of the conference, and touched upon the subject of standard time.

To give effect to this proposal it was suggested that Australia should be divided into three zones, the standard times for which should be respectively the mean solar times of the meridians of 120°, 135°, and 150° east longitude, thus giving standard times 8, 9, and 10 hours respectively, ahead of Greenwich time. It was proposed that the 120° zone should comprise Western Australia, that the 135° zone should comprise South Australia and the Northern Territory, and that the 150° zone should comprise Queensland, New South Wales, Victoria, and Tasmania.

The matter was also considered by several intercolonial postal conferences, and eventually in 1894 and 1895 legislation was enacted by each of the colonies in accord with the recommendations of the surveyors' conference of 1892.

In 1899 the South Australian legislature amended its earlier provision, and adopted the mean solar time of the meridian of 142° 30' east longitude as the standard time for that colony, thus reducing the difference between the standard time of Adelaide and those of the capitals of the eastern colonies from an hour to half an hour, and forfeiting the great advantage of the system, viz., that the minutes and seconds should be identical throughout the world.

Particulars concerning these enactments are as follows:—

#### STANDARD TIMES IN AUSTRALIA.

Colony.	Date when Act came into operation.	Meridian selected.	Time ahead of Greenwich.
New South Wales ... ..	1st February, 1895	150° E.	10 hours
Victoria ... ..	"	"	"
Queensland ... ..	1st January, 1895	"	"
South Australia ... ..	1st February, 1895	135° E.	9 hours
" " " " " " " "	1st May, 1899	142° 30' E.	9½ hours
Western Australia ... ..	1st December, 1895	120° E.	8 hours
Tasmania ... ..	1st September, 1895	150° E.	10 hours

Consequent upon the opening of the Trans-Australian Railway an arrangement has been made by which the change of time between South Australia and Western Australia (viz., 1½ hours) is divided into two changes of 45 minutes each. Going east from Kalgoorlie the first change is made at Rawlinna, 235.18 miles out, where the time is put forward by 45 minutes. The second change of the same amount is made at Tarcoola, 794.05 miles out. Thenceforward South Australian standard time is kept. The advantage of standard time has thus been still further sacrificed, as there is not now even a whole half-hour difference; the essential idea of standard zone time has to this extent, therefore, been abandoned.

## § 17. Anthropometrical Measurements of Military Cadets.

1. **General.**—Under the Defence Act of 1910, the principle of compulsory training was brought into operation in Australia on 1st January, 1911. Advantage was taken of this to secure a record of certain measurements and other particulars in respect of the cadets subjected to inspection, and an analysis of the data so obtained concerning height, weight, and minimum chest measurement, according to age, is given hereunder for the year ended 30th June, 1912. These particulars are in respect of urban and rural areas combined and relate to the Commonwealth as a whole.

2. **Height according to Age.**—(i.) *Numerical and Proportionate Distribution.* Leaving out the cases in which height, age, or both were omitted from the record, the number of measurements available for the height analysis was 120,702, of which 98,980 were in the eight half-yearly age periods comprised between the ages of 13 and 17, the remaining six age periods containing but 21,722. The age period most largely represented was that from 13½ to 14. The succeeding tables give the number and proportion in each age and height group, also the proportions shewing the distribution according to height of 10,000 in each age period. Owing to the evident tendency to state measurements in whole and half inches, the figures obtained in respect of records involving half inches have been equally divided between the preceding and succeeding whole inch records, and the other fractions have been carried to the nearest inch, thus giving results approximately true to the nearest inch.

### HEIGHT ACCORDING TO AGE.—DATA FOR THE WHOLE COMMONWEALTH FOR YEAR ENDED 30th JUNE, 1912.

#### NUMBER AND PROPORTION IN EACH GROUP.

Height to nearest inch.	Age of Cadets (Males).														Total.
	11½ and under 12	12 and under 13½	13½ and under 13	13 and under 13½	13½ and under 14	14 and under 14½	14½ and under 15	15 and under 15½	15½ and under 16	16 and under 16½	16½ and under 17	17 and under 17½	17½ and under 18	18 and over.	
NUMBER OF CADETS.															
Inches.															
50 & under	219	141	67	68	63	26	10	9	6	3	...	3	...	...	615
51	247	184	67	68	59	30	16	7	6	4	1	...	...	...	689
52	417	341	133	164	149	67	31	21	7	2	3	1	...	...	1,336
53	606	537	245	387	332	166	79	49	19	5	5	4	...	...	2,434
54	802	732	376	704	739	384	175	76	48	25	7	6	...	...	4,075
55	796	773	547	1,036	1,139	628	323	191	77	50	17	6	...	...	5,585
56	759	804	550	1,387	1,653	932	571	318	146	73	35	17	...	...	7,245
57	545	676	579	1,534	2,073	1,295	835	502	259	146	65	15	...	...	8,544
58	379	502	470	1,536	2,135	1,570	1,086	712	420	231	117	36	...	...	9,197
59	221	310	341	1,301	1,968	1,613	1,232	908	575	364	168	77	2	...	9,100
60	142	195	258	1,077	1,852	1,578	1,385	1,116	844	562	331	142	10	...	9,492
61	67	95	157	718	1,362	1,371	1,363	1,263	1,036	798	548	212	8	2	9,000
62	21	50	75	471	1,025	1,183	1,199	1,246	1,270	1,053	763	349	18	9	8,662
63	17	24	42	294	712	871	1,073	1,294	1,302	1,268	1,081	531	52	25	8,586
64	6	11	19	177	448	641	919	1,153	1,447	1,392	1,377	694	93	51	8,428
65	7	5	12	113	282	417	750	967	1,335	1,494	1,527	806	117	70	7,902
66	7	10	8	57	165	314	516	821	1,116	1,315	1,476	875	131	67	6,878
67	5	7	1	35	83	168	293	529	811	1,065	1,221	745	104	73	5,140
68	2	...	2	30	49	105	182	335	508	726	900	572	99	54	3,555
69	2	...	2	17	22	68	82	184	291	426	566	371	64	43	2,138
70	1	3	1	10	18	34	41	87	153	211	340	236	48	24	1,207
71	...	...	...	6	8	8	23	35	62	107	169	114	19	11	562
72	...	...	...	...	3	2	8	19	26	44	72	43	11	5	273
73	...	...	...	...	...	...	2	5	4	16	19	17	4	2	70
74	...	...	...	...	...	...	1	1	3	5	4	7	...	...	21
75	...	...	...	...	...	...	1	1	...	2	1	1	...	...	8
Total ...	5,268	5,400	3,953	11,204	16,339	13,479	12,195	11,849	11,701	11,397	10,833	5,880	783	438	120,702

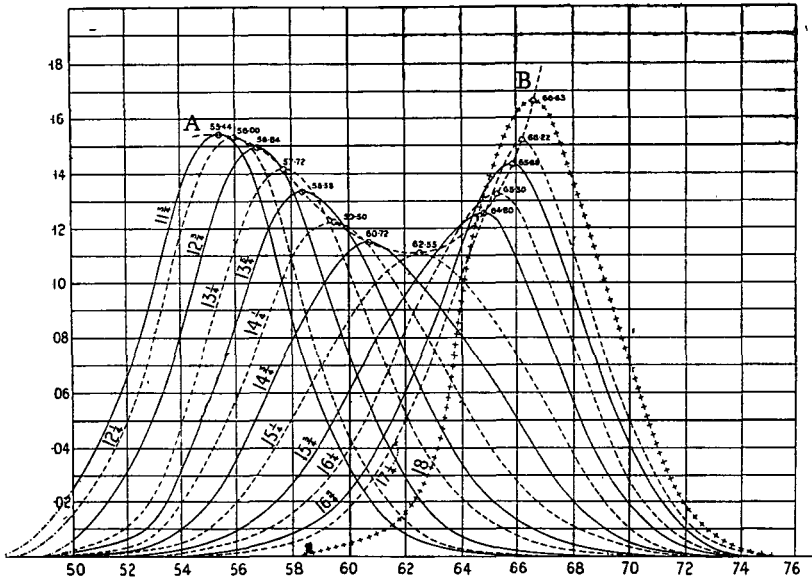
HEIGHT ACCORDING TO AGE.—DATA FOR THE WHOLE COMMONWEALTH  
FOR YEAR ENDED 30TH JUNE, 1912—Continued.

PROPORTIONATE DISTRIBUTION OF THE NUMBER IN EACH AGE GROUP  
ACCORDING TO HEIGHT.

Height to nearest inch.	Age of Cadets (Males).															
	11½ and under 12	12 and under 12½	12½ and under 13	13 and under 13½	13½ and under 14	14 and under 14½	14½ and under 15	15 and under 15½	15½ and under 16	16 and under 16½	16½ and under 17	17 and under 17½	17½ and under 18	18 and over.	17½ and over.	
Inches.																
50 & under	416	261	169	61	39	19	8	8	5	3	...	5	...	...	...	
51	469	341	169	61	36	22	13	6	5	4	...	1	...	...	...	
52	792	631	336	146	91	50	25	18	6	2	3	2	...	...	...	
53	1,150	994	620	346	203	123	65	41	16	4	5	7	...	...	...	
54	1,522	1,356	951	628	462	285	143	64	41	22	6	10	...	23	8	
55	1,511	1,431	1,384	927	697	466	265	161	66	44	16	10	...	...	...	
56	1,441	1,489	1,391	1,238	1,012	692	468	268	125	64	32	29	...	...	...	
57	1,035	1,252	1,465	1,397	1,269	961	685	424	221	128	60	25	...	...	...	
58	720	930	1,189	1,371	1,307	1,165	891	601	359	203	108	61	38	...	25	
59	419	574	863	1,161	1,204	1,197	1,010	766	492	320	173	131	26	...	16	
60	269	361	653	961	1,133	1,171	1,136	942	721	493	306	241	128	...	82	
61	127	176	397	641	834	1,018	1,118	1,056	885	701	506	361	102	45	82	
62	40	93	190	420	627	878	983	1,052	1,026	925	704	594	230	206	221	
63	32	44	106	262	436	647	880	1,092	1,113	1,114	998	903	664	571	631	
64	11	20	48	158	274	476	754	973	1,237	1,222	1,271	1,180	1,188	1,164	1,179	
65	13	9	30	101	173	310	615	816	1,141	1,312	1,410	1,371	1,494	1,598	1,531	
66	13	19	20	51	101	233	423	693	954	1,155	1,363	1,488	1,673	1,530	1,622	
67	10	13	3	31	51	125	240	446	693	935	1,127	1,267	1,328	1,667	1,450	
68	4	...	8	18	30	78	149	283	434	637	831	973	1,264	1,233	1,253	
69	4	...	5	15	13	50	67	155	249	374	522	631	817	982	876	
70	2	6	3	9	11	25	34	73	131	185	314	401	613	548	590	
71	...	...	...	5	5	6	19	30	53	94	156	194	243	251	246	
72	...	...	...	...	2	2	6	16	22	39	66	73	141	114	131	
73	...	...	...	1	...	...	2	4	3	14	17	29	51	45	49	
74	...	...	...	...	1	...	1	1	2	4	4	12	...	...	...	
75	...	...	...	1	...	...	1	...	...	2	1	2	...	23	8	
Total ...	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	

(ii.) *Graphical Representation.* Further facilities for the study of the data in respect of heights are furnished by the graph relative thereto which appears below. In the preparation of this graph the data given in the foregoing table in respect of proportionate distribution were plotted as a series of rectangles on units of abscissæ representing the successive heights in inches. Smooth curves were then drawn through the upper portions of these rectangles, and these after adjustment to accord closely with the data, and after slight graduation, gave the results produced in the graph. As will be seen from the table hereinafter on page 1205, there is a tendency towards symmetry in all the curves, the general trend being that of progress from negative skewness at the lower ages through a range of positive skewness to negative skewness again at the higher ages, the deviations from symmetry being relatively small in all cases. The curve marked A B is that which passes through the maximum points of the curves for successive age periods. Its minimum value corresponds to a height of 62.22 inches and accords fairly closely with the mode for the curve for age 15½, indicating that for the ages under review the scatter of the distribution in respect of height is greatest in the neighbourhood of that age. The curve marked 18 has been obtained from a combination of the numbers recorded for the age periods "17½ to 18" and "18 and over." The portions of the curves corresponding to abscissæ earlier than 50 have been inserted by graphical extrapolation. The mean height of the 120,702 cadets recorded was 60.81 inches, whilst the average of the mean heights for the successive age periods was 60.80 inches.

PROPORTIONATE DISTRIBUTION OF CADETS IN EACH AGE GROUP  
ACCORDING TO HEIGHT.



DESCRIPTION OF GRAPH.—The base of each small rectangle represents two inches, while the vertical height represents a proportionate distribution of .01. The figures written at the base indicate the heights of the Cadets in inches, while those written along the curves indicate the central age of the age group. The number written at the maximum point of each curve is its mode. J

3. Weight According to Age.—(i.) Numerical and Proportionate Distribution.

Exclusive of the cases in which weight, age, or both were unrecorded, the number of cases available for the weight analysis was 119,960, the age distribution being sensibly the same as that in the case of heights. The next table gives the number and proportion in each age and weight group, the proportions shewing the distribution according to weight of 10,000 in each age period.

WEIGHT ACCORDING TO AGE—DATA FOR THE WHOLE COMMONWEALTH FOR YEAR  
ENDED 30th JUNE, 1912.

NUMBER AND PROPORTION IN EACH GROUP.

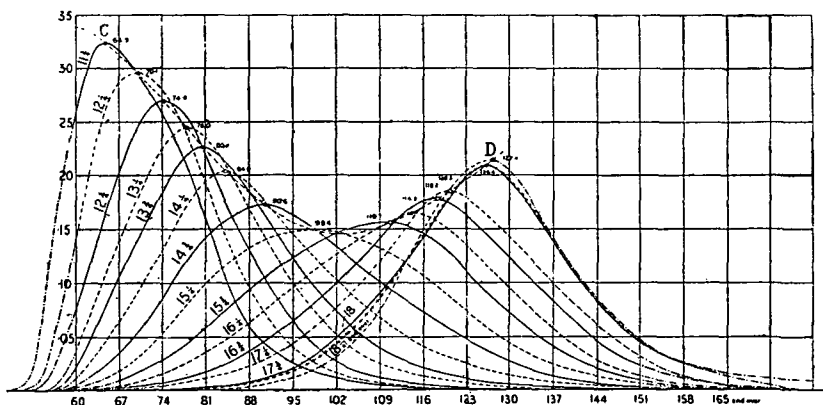
Weight to nearest lb.	Age of Cadets (Males).																		Total.
	11½ under 12	12½ under 13½	13½ under 14½	14½ under 15½	15½ under 16½	16½ under 17½	17½ under 18½	18½ under 19½	19½ under 20½	20½ under 21½	21½ under 22½	22½ under 23½	23½ under 24½	24½ under 25½	25½ under 26½	26½ under 27½	27½ under 28½	28½ under 29½	
66 & under	1,726	1,338	606	1,020	1,053	499	247	109	43	19	4	7	...	...	...	...	...	...	6,671
67-73	1,516	1,542	988	2,017	2,399	1,342	694	373	195	93	44	14	...	...	...	...	...	...	11,217
74-80	1,126	1,341	1,009	2,810	3,634	2,266	1,451	931	465	263	113	41	...	...	...	...	...	...	15,454
81-87	543	639	672	2,153	3,272	2,615	1,860	1,378	840	545	271	107	3	...	...	...	...	...	14,899
88-94	195	329	387	1,541	2,451	2,243	2,048	1,677	1,205	916	490	197	5	...	...	...	...	...	13,686
95-101	89	116	163	786	1,547	1,663	1,786	1,720	1,634	1,252	916	374	29	...	...	...	...	...	10,078
102-108	34	42	59	397	884	1,166	1,393	1,676	1,760	1,575	1,314	603	53	...	...	...	...	...	12,085
109-115	10	14	27	210	480	716	1,105	1,438	1,715	1,757	1,705	883	56	...	...	...	...	...	10,193
116-122	2	5	15	116	256	431	715	1,057	1,531	1,815	1,968	1,049	135	...	...	...	...	...	9,076
123-129	1	1	7	35	116	218	423	672	972	1,317	1,534	893	153	...	...	...	...	...	6,423
130-136	2	3	5	18	59	119	233	409	674	870	1,189	749	136	...	...	...	...	...	4,547
137-143	...	...	...	14	28	59	99	194	323	483	663	462	83	...	...	...	...	...	2,449
144-150	...	...	...	4	17	23	38	97	170	241	356	272	45	...	...	...	...	...	1,305
151-157	...	...	...	3	4	11	26	29	61	92	163	100	27	...	...	...	...	...	531
158-164	...	...	...	1	2	8	2	6	18	30	35	75	40	...	...	...	...	...	232
165 & over	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	214
Total ...	5,244	5,376	3,940	11,126	16,209	13,377	12,140	11,793	11,643	11,303	10,764	5,835	778	432	...	...	...	...	119,960

WEIGHT ACCORDING TO AGE.—DATA FOR THE WHOLE COMMONWEALTH  
FOR THE YEAR ENDED 30TH JUNE, 1912—Continued.

## PROPORTIONATE DISTRIBUTION OF EACH AGE GROUP ACCORDING TO WEIGHT.

Weight to nearest lb.	Age of Cadets (Males).																
	11½ and under 12	12 and under 13½	13½ and under 15	15 and under 17	17 and under 19	19 and under 21	21 and under 23	23 and under 25	25 and under 27	27 and under 29	29 and under 31	31 and under 33	33 and under 35	35 and under 37	37 and under 39	39 and under 41	41 and over
66 & under	3,291	2,489	1,538	917	650	373	203	92	37	17	4	12	...	...	...	...	...
67-73	2,891	2,868	2,507	1,813	1,480	1,003	572	316	163	82	41	24	...	...	...	...	...
74-80	2,147	2,494	2,561	2,396	2,137	1,639	1,195	789	399	233	105	70	51	...	...	...	...
81-87	1,035	1,188	1,706	2,064	2,124	2,010	1,532	1,169	721	462	262	183	99	23	...	...	...
88-94	372	612	992	1,385	1,512	1,677	1,687	1,422	1,035	810	455	338	64	46	...	...	...
95-101	170	216	414	706	954	1,243	1,471	1,459	1,404	1,108	851	641	375	232	328	...	...
102-108	65	78	150	357	545	872	1,148	1,421	1,453	1,349	1,170	1,033	681	509	620	...	...
109-115	19	26	68	189	296	535	910	1,219	1,531	1,599	1,634	1,513	1,105	1,088	1,099	...	...
116-122	...	...	38	104	158	310	589	896	1,315	1,606	1,735	1,798	1,735	1,875	1,785	...	...
123-129	2	2	18	31	72	175	349	570	835	1,166	1,425	1,531	1,967	1,875	1,934	...	...
130-136	4	6	13	16	36	89	192	347	579	769	1,105	1,284	1,748	1,875	1,793	...	...
137-143	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
144-150	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
151-157	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
158-164	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
165 & over	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total ...	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000

(ii.) **Graphical Representation.**—The graph given below relative to weights has been constructed on principles similar to those described in the case of the height graph. In this case also there is a marked tendency towards symmetry in all the curves, the general trend being from positive skewness at the earlier ages to negative skewness at the later ages, with relatively small deviation from symmetry in any case. The curve marked CD is that which passes through the maximum points of the

PROPORTIONATE DISTRIBUTION OF CADETS IN EACH AGE GROUP  
ACCORDING TO WEIGHT.

**DESCRIPTION OF GRAPH.**—The base of each small rectangle represents 7 lbs., while the vertical height represents a proportionate distribution of .05. The figures written at the base indicate the weights of the Cadets in lbs., while those written along the curves indicate the central age of the age group. The number written at the maximum point of each curve is its mode.

curves for successive age periods. Its minimum value corresponds to a weight of 103 lbs., and would accord approximately with the mode for a curve for age 15½, indicating that for the ages under review the scatter of distribution in respect of weight is greatest in the neighbourhood of that age. The curve marked "18" has been obtained from a combination of the numbers recorded for the age periods "17½ to 18" and "18 and over." The portions of the curves corresponding to abscissæ earlier than 60 and later than 151 have been inserted by graphical extrapolation. The mean weight of the 119,960 cadets was 96.35 lbs., while the average of the mean weights for the several age periods was 96.98 lbs.

4. Chest Measurement according to Age.—(i.) *Numerical and Proportionate Distribution.* Excluding the cases in which chest measurement, age, or both were unrecorded, the number of cases available for analysis in respect of chest measurement was 120,054, the age distribution being sensibly the same as for heights and weights. The following table gives the number and proportions in each age and minimum chest group, the proportions shewing the distribution according to the minimum chest measurement of 10,000 in each age period. Owing to the evident tendency to state measurements in whole inches, the figures obtained in respect of records involving half inches have been equally divided between the preceding and succeeding whole inch records, thus giving results approximately true to the nearest inch.

MINIMUM CHEST MEASUREMENT ACCORDING TO AGE. DATA FOR THE WHOLE COMMONWEALTH FOR YEAR ENDED 30th JUNE, 1912.

NUMBER AND PROPORTION IN EACH GROUP.

Minimum Chest Measurement to nearest incl.	Age of Cadets (Males).															Total.
	11½ and under 12	12 and under 12½	12½ and under 13	13 and under 13½	13½ and under 14	14 and under 14½	14½ and under 15	15 and under 15½	15½ and under 16	16 and under 16½	16½ and under 17	17 and under 17½	17½ and under 18	18 and over.		
23 & under	658	473	273	436	275	92	52	33	18	9	2	...	...	...	2,321	
24	1,214	1,148	606	1,248	1,536	806	439	232	105	53	22	7	1	...	7,417	
25	1,299	1,350	924	2,334	2,973	1,815	1,115	641	387	206	104	27	1	...	13,176	
26	1,050	1,153	909	2,627	3,805	2,707	1,926	1,316	840	516	251	99	1	...	17,200	
27	593	694	650	2,190	3,346	2,869	2,333	1,962	1,491	1,040	667	244	10	1	18,090	
28	253	330	313	1,229	2,165	2,238	2,199	2,196	1,937	1,588	1,169	528	24	10	16,179	
29	104	120	112	607	1,167	1,453	1,750	1,882	2,093	2,008	1,753	864	70	34	14,022	
30	30	37	63	239	569	766	1,165	1,607	1,962	2,152	2,133	1,130	163	62	12,078	
31	10	19	20	113	267	394	673	1,004	1,447	1,725	1,964	1,141	196	103	9,076	
32	5	7	12	41	86	174	307	537	774	1,031	1,378	897	145	80	5,524	
33	...	4	5	22	52	66	128	252	372	561	767	491	93	80	2,893	
34	1	4	4	5	17	31	51	95	154	271	382	259	37	41	1,352	
35	...	...	...	3	3	10	15	30	53	87	134	89	14	13	451	
36	...	...	1	3	3	3	8	14	29	45	39	5	5	5	169	
37	...	...	...	...	1	1	1	5	8	10	11	14	1	3	55	
38	...	1	...	1	2	1	1	...	4	3	5	5	1	1	25	
39	...	...	...	1	2	...	...	...	2	4	1	1	...	1	12	
40	...	...	...	...	...	...	...	1	1	...	1	2	...	...	5	
41	...	...	...	...	...	...	1	1	...	1	...	...	...	...	3	
42	...	...	...	...	...	2	...	...	...	1	...	...	...	...	4	
43	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
44 and over	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	
Total ...	5,217	5,340	3,892	11,099	16,269	13,428	12,165	11,808	11,663	11,345	10,795	5,837	762	434	120,054	

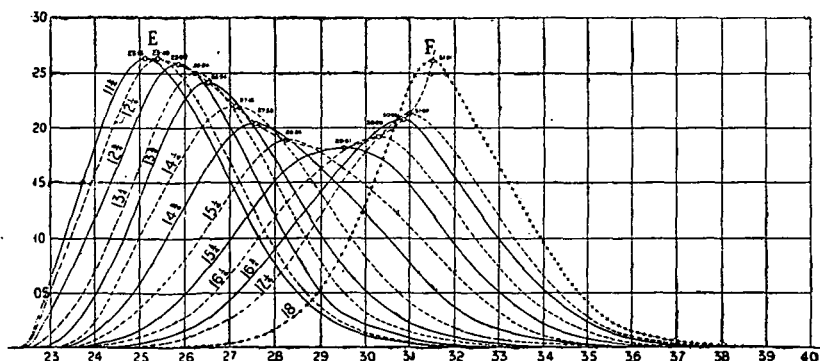


PROPORTIONATE DISTRIBUTION OF EACH AGE GROUP ACCORDING TO  
MINIMUM CHEST MEASUREMENT.

Minimum Chest Measure- ment to nearest inch.	Age of Cadets (Males.)															
	11½ and under 12	12 and under 12½	12½ and under 13	13 and under 13½	13½ and under 14	14 and under 14½	14½ and under 15	15 and under 15½	15½ and under 16	16 and under 16½	16½ and under 17	17 and under 17½	17½ and under 18	18 and over	17½ and over.	
23 & under	1,261	886	701	393	169	69	43	28	15	6	2	...	...	...	...	
24	2,327	2,150	1,557	1,124	944	600	361	196	90	47	20	12	13	...	8	
25	2,490	2,528	2,374	2,103	1,827	1,352	916	543	332	181	96	46	13	...	8	
26	2,013	2,159	2,336	2,367	2,339	2,016	1,583	1,115	720	455	233	170	13	...	9	
27	1,137	1,300	1,670	1,973	2,057	2,137	1,918	1,682	1,278	917	618	418	131	23	92	
28	485	618	804	1,107	1,331	1,667	1,803	1,860	1,661	1,400	1,083	904	315	230	284	
29	199	225	288	547	717	1,082	1,439	1,594	1,795	1,770	1,628	1,480	919	784	870	
30	58	69	162	215	350	570	958	1,361	1,682	1,897	1,976	1,936	2,139	1,429	1,881	
31	19	36	51	102	164	293	553	850	1,241	1,520	1,819	1,955	2,572	2,373	2,500	
32	9	13	31	37	53	130	252	455	664	953	1,276	1,537	1,903	1,843	1,881	
33	...	7	13	20	32	49	105	213	319	494	711	841	1,220	1,843	1,447	
34	2	7	10	4	10	23	42	80	132	239	354	444	486	945	652	
35	...	...	...	3	3	2	7	12	25	45	77	124	152	184	300	
36	...	...	...	...	2	2	6	12	19	25	42	67	66	115	84	
37	...	...	...	...	1	1	1	4	7	9	10	24	13	69	34	
38	...	2	...	...	1	1	1	...	3	5	9	13	23	16	16	
39	...	...	...	...	1	...	...	...	2	3	1	2	...	23	8	
40	...	...	...	...	...	...	...	1	1	...	1	3	...	...	...	
41	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	
42	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	
43	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
44 and over	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	
Total ...	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	

(ii.) *Graphical Representation.*—The graph given below relative to minimum chest measurement has been constructed on similar lines to those described in the case of the height graph. In this case the tendency towards symmetry is less marked than with heights or weights. The general trend is from well marked positive skewness at the lower ages to less defined negative skewness or symmetry at the higher ages. The curve for 18, which deviates slightly from this trend by giving positive skewness, is based on relatively meagre data.

PROPORTIONATE DISTRIBUTION OF CADETS IN EACH AGE GROUP ACCORDING  
TO MINIMUM CHEST MEASUREMENT.



DESCRIPTION OF GRAPH.—The base of each small rectangle represents one inch, while the vertical height represents a proportionate distribution of .05. The figures written at the base indicate the minimum chest measurements of the Cadets in inches, while those written along the curves indicate the central age of the age group. The number written at the maximum point of each curve is its mode.

The curve marked E F is that which passes through the maximum points of the curves for the several age periods. Its minimum value corresponds to a chest measurement of 29.12 inches, and would accord with the mode for an age slightly above 15½, indicating that for the ages under review the scatter of distribution in respect of minimum chest measurement is greatest in the neighbourhood of that age. The curve marked "18" has been obtained from a combination of the numbers recorded for the age periods "17½ to 18" and "18 and over." The portions of the curves corresponding to abscissæ earlier than 23 have been inserted by graphical extrapolation. The mean minimum chest measurement of the 120,054 cadets was 27.84 inches, whilst the average of the means for the several age periods was 27.92 inches.

5. **Skewness of Curves.**—The following table, which has been referred to above, furnishes particulars of the means and modes of the several curves and thus indicates the nature and extent of their deviation from symmetry :—

**TABLE OF MEANS AND MODES OF HEIGHTS, WEIGHTS AND MINIMUM CHEST MEASUREMENTS, AT AGES 11½ TO 18.**

Ages.	11½	12½	12¾	13½	13¾	14½	14¾	15½	15¾	16½	16¾	17½	18
<b>HEIGHTS (IN INCHES).</b>													
Mean ...	55.0	55.6	56.6	57.8	58.6	59.7	60.9	62.1	63.2	64.1	65.0	65.4	66.3
Mode ...	55.4	56.0	56.8	57.7	58.4	59.5	60.7	62.6	64.8	65.3	65.9	66.2	66.6
Mean—Mode	— 0.4	— 0.4	— 0.2	+ 0.1	+ 0.2	+ 0.2	+ 0.2	— 0.5	— 1.6	— 1.2	— 0.9	— 0.8	— 0.3
<b>WEIGHTS (IN LBS.)</b>													
Mean ...	71.9	74.0	77.5	81.7	84.7	89.6	95.6	101.4	107.6	112.2	117.5	120.3	126.8
Mode ...	64.9	70.1	74.3	78.0	80.7	84.2	90.6	98.4	110.7	114.2	118.2	120.3	126.4
Mean—Mode	+ 7.0	+ 3.9	+ 3.2	+ 3.7	+ 4.0	+ 5.4	+ 5.0	+ 3.0	— 3.1	— 2.0	— 0.7	0.0	+ 0.4
<b>MINIMUM CHEST MEASUREMENTS (IN INCHES).</b>													
Mean ...	25.2	25.4	25.8	26.2	26.5	27.1	27.7	28.4	29.0	29.6	30.2	30.5	31.4
Mode ...	25.1	25.4	25.9	26.3	26.5	27.1	27.6	28.3	29.5	30.3	30.9	31.0	31.5
Mean—Mode	+ 0.1	0.0	— 0.1	0.0	0.0	0.0	+ 0.1	+ 0.1	— 0.5	— 0.7	— 0.7	— 0.5	— 0.1

# APPENDIX.

Recent information and returns which have come to hand since the various sections of this book were sent to press, are given hereunder.

## SECTION III.

### PHYSIOGRAPHY.

#### § 5. The Geology of Australia.

3. **The Building Stones of Australia, p. 56.**—In August, 1918, an illustrated pamphlet by H. C. Richards, D.Sc., dealing with "The Building Stones of Queensland," was reprinted from the Proceedings of the Royal Society of Queensland. (Vol. xxx., No. 8.)

## SECTION VII.

### PASTORAL PRODUCTION.

#### § 1. Initiation and Growth of Pastoral Industry.

3. **Increase in Numbers, p. 305.**—The following table shews the estimated number of horses, cattle, sheep, and pigs in the Commonwealth at the latest dates available. The totals shew a satisfactory upward tendency as compared with the previous year's figures:—

#### PRELIMINARY FIGURES.—LIVE STOCK.

States and Territories.	Date.	Horses.	Cattle.	Sheep.	Pigs.
New South Wales ...	30/6/17	732,334	2,757,713	36,086,241	359,504
Victoria ...	1/3/18	514,061	1,371,049	14,760,013	323,159
Queensland ...	31/12/17	733,014	5,316,558	17,204,268	172,699
South Australia...	30/6/17	257,422	288,887	5,091,282	118,542
Western Australia	31/12/17	178,151	957,086	6,384,191	111,844
Tasmania ...	1/3/18	42,396	197,938	1,711,116	54,653
Northern Territory	31/12/16	21,674	420,362	47,520	500
Federal Territory	30/6/17	1,457	8,230	110,142	259
Commonwealth ...	...	2,480,509	11,317,823	81,394,773	1,141,160

## SECTION VIII. AGRICULTURAL PRODUCTION.

### § 4. Wheat.

6. (ii.) **Advances and Finance, p. 349.**—Up to the 14th October, 1918, the position as regards the 1916-17 and 1917-18 wheat crops was that 3s. 3d. per bushel had been advanced to farmers up to that date.

6. (iii.) **Results of the Scheme, p. 350.**—Deliveries made on account of each harvest are as follows:—

#### WHEAT DELIVERED IN EACH STATE, 1915-18.

State in which pooled.	1915-16.	1916-17.	1917-18 to 14/10/18.
	Bushels.	Bushels.	Bushels.
New South Wales ...	58,244,000	32,471,000	33,486,000
Victoria ...	59,176,000	50,406,000	36,197,000
South Australia ...	29,894,000	41,990,000	25,792,000
Western Australia ...	14,943,000	13,825,000	7,245,000
Total ...	162,257,000	138,692,000	102,720,000

On 14th October, 1918, the total overdraft on all pools amounted to £12,937,000.

The quantities of wheat disposed of and in hand on that date were as follows:—

#### WHEAT DISPOSED OF AND IN HAND IN EACH STATE, 14th OCTOBER, 1918.

Particulars.	N.S.W.	Vic.	S.A.	W.A.	Total.
1915-16. (In thousands of bushels).					
Shipments ...	28,977	37,742	17,869	10,169	94,757
Local Sales ...	29,597	22,034	7,480	4,835	63,946
Stocks on hand ...	...	30	4,545	...	4,575
Total ...	58,574	59,806	29,894	15,004	163,278
1916-17. (In thousands of bushels).					
Shipments ...	4,245	2,952	5,900	2,271	15,368
Local Sales ...	13,280	14,583	7,864	8,015	43,742
Stocks on hand ...	14,549	32,871	28,232	3,536	79,188
Total ...	32,074	50,406	41,996	13,822	138,298
1917-18. (In thousands of bushels).					
Shipments ...	1,021	...	702	82	1,805
Local Sales ...	9,604	6,814	538	454	17,410
Stocks on hand ...	23,012	29,383	24,553	6,945	83,893
Total ...	33,637	36,197	25,793	7,481	103,108

The value realised to 14th October, 1918 (all pools) is as follows :—

**VALUE OF WHEAT SOLD IN EACH STATE, 14th OCTOBER, 1918.**

Particulars.	N.S.W.	Vic.	S.A.	W.A.	Total.
	£	£	£	£	£
Oversea shipments and Australian Wheat Board Flour Contracts	10,568,000	11,923,000	7,350,000	4,161,000	34,002,000
Local Sales ...	10,575,000	7,210,000	2,131,000	1,514,000	21,430,000
Total shipments and local deliveries	21,143,000	19,133,000	9,481,000	5,675,000	55,432,000

**SECTION XII.**

**MINES AND MINING.**

**§ 1. The Mineral Wealth of Australia.**

3. Value of Production during 1917.—The following table shews the value of the production of the principal minerals and of all minerals for each State and for the Commonwealth during the year 1917:—

**COMMONWEALTH MINERAL PRODUCTION, 1917.**

Minerals.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N.T.	C'wealth.
	£	£	£	£	£	£	£	£
Gold ...	349,038	857,500	761,639	30,334	4,121,645	61,577	1,440	6,183,173
Silver and lead ...	5,110,096	1,406	55,181	12,351	178,321	152,122	*	5,509,477
Copper ...	814,154	...	2,208,232	902,495	85,738	847,754	*	4,858,373
Tin ...	373,696	19,709	160,600	...	45,288	427,917	*	1,027,210
Coal ...	4,422,740	345,830	597,360	...	191,822	38,673	*	5,596,425
All minerals	12,563,651	1,294,240	4,012,977	1,456,718	4,629,027	1,584,290	*	25,540,903

\* Not yet available.

**§ 12. Oil Shale and Mineral Oils.**

3. Shale Oil Bounties, p. 56.—The "Shale Oil Bounty Act 1917" provides for the payment of bounty on crude shale oil in accordance with the schedule hereunder:—

Description of Goods.	Period dating from 1st Sept. 1917, during or in respect of which bounty may be paid.	Rate of Bounty payable in each year to each producer of goods produced by him at each separate deposit as prescribed.	Maximum Amount which may be paid in any one year.	Date of Expiry of Bounty.
Crude Shale Oil, as prescribed, produced in Australia from Mined Kerosene Shale.	Four years.	On each gallon up to 3,500,000 gallons, 2½d. On each gallon exceeding 3,500,000 and not exceeding 5,000,000 gallons, 2d. On each gallon exceeding 5,000,000 gallons and not exceeding 8,000,000 gallons, 1½d. On each additional gallon, 1½d.	£67,500.	31st August, 1921.

## SECTION XVII.

## § 2. Railways.

## (A) General.

6. **Page 658.**—The report of the Board of Commonwealth and States' Railway Engineers was issued late in September, 1918. It gives a list of a large number of devices submitted to it for dealing with the break of gauge question, and states the reasons for such devices failing to satisfy the conditions under which train working must be conducted in order to secure safety and celerity.

## (B) Federal Railways.

4. **Page 662.**—Insert after "at any time" on sixth line from bottom of page, "A further Act was passed providing for lands outside the quarter-mile strip where necessary for the purposes of construction, maintenance and working of the railway, being handed over by the State of South Australia to the Commonwealth Government."

**Page 662.**—On last line but one, for "12th September" read "14th September, 1912."

**Page 663.**—On eleventh line, for "450" read "over 400"; on fourteenth line, for "207" read "205"; on sixteenth line, for "290" read "205"; on seventeenth line, for "no less than 309" read "over 300"; on twenty-sixth line, for "50" read "52."

**Page 664.**—Rate of construction of line.—The following records were made in platelaying :—

			Miles.	Chains.
In any one day	...	...	2	40
„ „ week	...	...	14	50
„ four weeks	...	...	46	62
„ six months	...	...	250	30
„ twelve months	...	...	442	44

Owing to delay on the part of contractors in supplying rails, platelaying on the Western Division was suspended from December 18th, 1915, to July 3rd, 1916, and from December 16th, 1916, to May 28th, 1917.

On nineteenth line from bottom of page for "45" read "40."

**Page 665.**—Reservoirs on Trans-Australian Railway.—A reservoir has also been made at Wynbring, 322 miles ex Port Augusta, with a capacity of 2,000,000 gallons.

The traffic on this line is regulated by the use of electric train staff, there being 20 sections in operation between the terminal stations, the length of the sections averaging 50 miles each.

## SECTION XIX.

## COMMONWEALTH FINANCE.

## § 1. General.

7. **Accounts of Commonwealth Government, p.760.**—(i.) On the 25th September, 1918, Mr. Watt, Commonwealth Treasurer, delivered his Budget speech, bringing forward the statement of accounts for the year 1917-18, and the estimates for the year 1918-19. A summary of these important statements is appended, but in studying them it must be distinctly remembered that the figures for 1917-18 are not yet final, and are subject to slight revision, whilst the figures for 1918-19 are estimates only, and may in some instances prove to be wide of the mark. This is particularly possible in the case of the estimated yield from the different forms of taxation.

Setting aside loan expenditure, and deducting Commonwealth payments to States from both sides of the account, the revenue and expenditure appear as follows:—

	1917-18 (Actual). £	1918-19 (Estimated). £
Revenue ... ..	30,462,594	34,229,250
Expenditure ... ..	28,634,930	38,903,345
Surplus for year ... ..	1,827,664	...
Deficit for year... ..	...	4,674,095

The year 1918-19 opened with a credit balance of £3,905,091, and to this was added £800,000 from London funds. A total of £4,705,091 is thus obtained, which wipes out the deficiency for the year and replaces it by an estimated surplus of £30,996. This, however, is only a temporary expedient, and does not constitute a permanent balance between revenue and expenditure.

(ii.) *Revenue.* Details of the net revenue are given in the table which follows. They are arranged in such a way as to give due prominence to the several items composing Commonwealth taxation, which is becoming so important a factor in Public Finance.

#### FEDERAL CONSOLIDATED REVENUE, 1917-19.

Heading.	1917-18 (Actual).	1918-19 Estimate).
<b>Taxation—</b>	<b>£</b>	<b>£</b>
Customs and Excise ... ..	13,225,295	14,035,000
Land Tax ... ..	2,123,778	2,380,000
Income Tax ... ..	7,385,543	9,600,000
Postage Tax ... ..	...	516,000
Probate and Succession ... ..	945,232	750,000
Entertainments Tax ... ..	245,890	480,000
War Time Profits Tax ... ..	680,008	1,800,000
<b>Total Taxation ... ..</b>	<b>24,603,746</b>	<b>29,561,000</b>
Post Office ... ..	5,755,722	6,000,000
Miscellaneous ... ..	6,443,500	5,109,500
<b>Total Revenue ... ..</b>	<b>36,802,968</b>	<b>40,670,500</b>
Less paid to States ... ..	6,340,374	6,441,250
<b>Net Revenue ... ..</b>	<b>30,462,594</b>	<b>34,229,250</b>

In this table it has been assumed that taxation for 1918-19 will be levied on the new scale foreshadowed by the Commonwealth Treasurer. This new scale provides for an increase of Customs and Excise Revenue from liquors and tobacco, an increase of 30 per cent. in the income tax, and 20 per cent. in the land tax, a broadening of the scale of the entertainments tax, and a new postage war tax. The estimated taxation on the old basis would only be £24,205,000.

(iii.) *Expenditure from Consolidated Revenue.* The expenditure for 1917-18, as compared with the estimate for 1918-19, is given in the following table:—

## EXPENDITURE FROM FEDERAL CONSOLIDATED REVENUE, 1917-19.

Heads of Expenditure.		1917-18 (Actual).	1918-19 (Estimated).
1. Ordinary—		£	£
Interest ... ..		380,808	470,300
Sinking Fund ... ..		36,555	36,555
Invalid and Old Age Pensions ... ..		3,858,990	3,925,000
Maternity Allowance ... ..		634,428	634,000
Defence, Military ... ..		1,281,776	1,783,948
Navy ... ..		1,548,356	1,632,886
Post Office ... ..		5,350,375	5,494,503
New Works ... ..		625,014	454,951
Expenditure ... ..		2,513,643	2,541,600
		16,229,945	16,973,743
2. Interest (States) ... ..		548,750	800,000
3. War (portion only) ... ..		11,856,235	21,129,602
		28,634,930	38,903,345
Total ... ..			

(iv.) *War Expenditure.* The total war expenditure from consolidated revenue and loan respectively, since 1914-15, is set out in the following table:—

## WAR EXPENDITURE FROM REVENUE AND LOAN, 1914-19.

Year.	From Revenue.	From Loan.	Total.
	£	£	£
1914-15 ... ..	640,217	14,471,118	15,111,335
1915-16 ... ..	3,778,378	37,423,568	41,201,946
1916-17 ... ..	8,427,329	53,114,237	61,541,566
1917-18 ... ..	11,856,235	54,886,115	66,742,350
1918-19 (estimated) ... ..	21,129,602	78,914,809	100,044,411

The war expenditure from loans for 1918-19 includes advances to States for construction and erection of silos for wheat storage, (to be recovered) £1,500,000; repatriation, £1,500,000; forestry, £500,000; and contributions under the War Loan Securities Repurchase Act 1918, £1,250,000.

(v.) *Public Debt.* The Public Debt of the Commonwealth as at the 30th June, 1918, was £284,022,072, detailed as follows:—

## FEDERAL PUBLIC DEBT AS AT 30th JUNE, 1918.

Heading.	£
War loans in Australia ... ..	143,194,680
War loans from Imperial Government... ..	49,082,059
War Savings Certificates ... ..	4,535,359
Loans raised for States ... ..	12,000,000
Other loans ... ..	15,352,550
Transferred properties ... ..	11,202,516
Accrued deferred pay, Australian Imperial Forces ... ..	10,309,908
Indebtedness to Imperial Government for maintenance of Australian Imperial Forces ... ..	38,345,000
	284,022,072



## SECTION XXXI.

## COMMONWEALTH SEAT OF GOVERNMENT.

8. Revenue and Expenditure, p. 1079.—The following table shews the particulars of expenditure for the year ended 30th June, 1918, and also the total expenditure on each item since 30th June, 1910:—

## COMMONWEALTH SEAT OF GOVERNMENT, EXPENDITURE TO 30th JUNE, 1918.

Item.	Total Ex- penditure to 30th June, 1917.	Expenditure (or Credit), 1917-18.		Total Ex- penditure to- 30th June, 1918.
		Dr.	Cr.	
	£	£	£	£
Afforestation ... ..	12,977	2,871	...	15,848
Bridges, Roads and Culverts ... ..	80,183	2,576	...	82,759
Buildings, Repairs, etc. ... ..	113,526	10,613	...	124,139
Brickworks ... ..	46,130	...	328	45,802
Cement and Quarrying ... ..	5,086	25	...	5,111
Electric Lighting (Mains and Plant only)	77,374	...	2,039	75,335
Fire Brigade... ..	1,268	...	...	1,268
Fencing ... ..	3,632	5	...	3,637
General Expenditure (including Adminis- trative Charges) ... ..	140,830	11,202	...	152,032
Manufacturing Accounts ... ..	5,494	...	10,334	Cr. 4,840
Maintenance Accounts ... ..	1,880	...	...	1,880
Motor Cars and Upkeep ... ..	8,461	753	...	9,214
Medical Services ... ..	10,378	1,464	...	11,842
New South Wales Government (Services Rendered) ... ..	12,209	2,830	...	15,039
Plant, Instruments, etc. ... ..	19,828	...	55	19,773
Railways ... ..	62,409	3,497	...	65,906
Rabbit Destruction... ..	13,118	1,986	...	20,104
Stock (Material) ... ..	38,159	5,826	...	43,985
Sewerage, Mains, etc. ... ..	39,002	...	573	38,429
Water Supply ... ..	253,145	1,400	...	254,545
Wire Netting Lessees ... ..	6,470	392	...	6,862
Total ... ..	956,559	45,440	13,329	988,670

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